GA-6LXSV

LGA1150 socket motherboard for Intel® E3 series processors

User's Manual

Rev. 1001

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Documentation Classifications

In order to assist in the use of this product, GIGABYTE provides the following types of documentations:

- For detailed product information, carefully read the User's Manual.

For product-related information, check on our website at:
http://www.gigabyte.com

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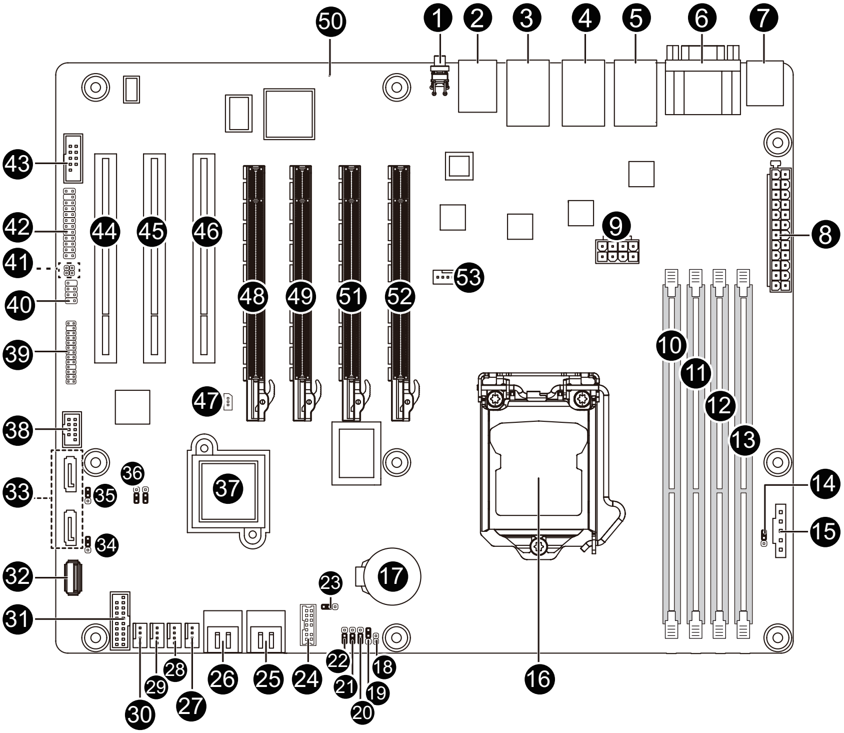
Box Contents

☑ GA-6LXSV motherboard
☑ Driver CD
☑ Two SATA cables
☑ I/O Shield

- The box contents above are for reference only and the actual items shall depend on the product package you obtain. The box contents are subject to change without notice.
- The motherboard image is for reference only.

GA-6LXSV Motherboard Layout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Item	Code	Description
1	ID_SW1	ID Switch button
2	MLAN1	BMC Management LAN port
3	USB3_LAN1	LAN1 port (top) / USB 3.0 ports (bottom)
4	USB3_LAN2	LAN2 port (top) / USB 3.0 ports (bottom)
5	LAN_3_4	LAN ports
6	COM1_VGA1	Serial port (top) / VGA port (bottom)
7	KB_USB1	USB 2.0 ports (top)/PS/2 connector (buttom)
8	P1	24 pin power connector
9	P2	8 pin power connector
10	DDR3_P0_A0	DIMM slot (channel 1 slot 0)
11	DDR3_P0_A1	DIMM slot (channel 1 slot 1)
12	DDR3_P0_B0	DIMM slot (channel 2 slot 0)
13	DDR3_P0_B1	DIMM slot (channel 2 slot 1)
14	PMBUS_SEL1	PMBus Select jumper
15	PMBUS_CN_1	PMBus connector
16	CPU	Intel LGA1150 socket
17	BAT	Battery socket
18	JP2	Case open intrusion header
19	J_S3MASK	S3 Power On Select jumper
20	J_BIOSRVCR	BIOS recovery jumper
21	J_PASSWORD	Skip supervisor password jumper
22	J_MEUPDATE	ME recovery jumper
23	J_CLRCMOS	Clear CMOS jumper
24	TPM_MEZZ1	TPM module connector
25	SATA23	SATA 6Gb/s connectors
26	SATA45	SATA 3Gb/s connectors
27	SYS_FAN4	System fan connector
28	SYS_FAN3	System fan connector
29	SYS_FAN2	System fan connector
30	SYS_FAN1	System fan connector
31	F_USB3_1	USB 3.0 header
32	USB_A1	USB 2.0 Type A connector
33	SATA0/1	SATA 6Gb/s connectors
34	SATA_DOM2	SATA port 1 DOM support jumper

35	SATA_DOM1	SATA port 0 DOM support jumper.
36	J_HDA_SDO1	ME recovery jumper
37	U7	Intel C224 Chipest
38	F_USB1	USB 2.0 header
39	BP_1	Back plane board header
40	SGPIO	SGPIO header
41	LAN3/LAN4	LAN3 Active LED (Right) LAN4 Active LED (Left)
42	FP_1	Front panel header
43	COM2	Serial port cable connector
44	PCI_1	PCI 32bit/33MHz slot
45	PCI_2	PCI 32bit/33MHz slot
46	PCI_3	PCI 32bit/33MHz slot
47	IPMB1	IPMB connector
48	PCIE_1	PCI-E x16 slot (Shared bandwidth with PCIE_2/PCIE_3 slot)
49	PCIE_2	PCI-E x16 slot (Shared bandwidth with PCIE_1/PCIE_3 slot)
50	BMC_LED2	BMC readiness LED
51	PCIE_3	PCI-E x16 slot (Shared bandwidth with PCIE_1/PCIE_2 slot)
52	PCIE_4	PCI-E x16 slot (running at x1 mode)
53	CPU0_FAN1	CPU fan connector

CAUTION! If a SATA type hard drive is connected to the motherboard, please ensure the jumper is closed and set to **2-3 pins** (Default setting), in order to reduce any risk of hard disk damage. Please refer to Page 31 for SATA_DOM1 and SATA_DOM2 jumper setting instruction.

Chapter 1 Hardware Installation

1-1 Installation Precautions

The motherboard contains numerous delicate electronic circuits and components which can become damaged as a result of electrostatic discharge (ESD). Prior to installation, carefully read the user's manual and follow these procedures:

- Prior to installation, do not remove or break motherboard S/N (Serial Number) sticker or warranty sticker provided by your dealer. These stickers are required for warranty validation.
- Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.
- When connecting hardware components to the internal connectors on the motherboard, make sure they are connected tightly and securely.
- When handling the motherboard, avoid touching any metal leads or connectors.
- It is best to wear an electrostatic discharge (ESD) wrist strap when handling electronic components such as a motherboard, CPU or memory. If you do not have an ESD wrist strap, keep your hands dry and first touch a metal object to eliminate static electricity.
- Prior to installing the motherboard, please have it on top of an antistatic pad or within an electrostatic shielding container.
- Before unplugging the power supply cable from the motherboard, make sure the power supply has been turned off.
- Before turning on the power, make sure the power supply voltage has been set according to the local voltage standard.
- Before using the product, please verify that all cables and power connectors of your hardware components are connected.
- To prevent damage to the motherboard, do not allow screws to come in contact with the motherboard circuit or its components.
- Make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
- Do not place the computer system on an uneven surface.
- Do not place the computer system in a high-temperature environment.
- Turning on the computer power during the installation process can lead to damage to system components as well as physical harm to the user.
- If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician.

1-2 Product Specifications

CPU	◆ Support for Intel® Xeon® E3-1200 family processors in the LGA1150 package ◆ L3 cache varies with CPU
Chipset	◆ Intel® C224 PCH
Memory	◆ 4 x 1.5V DDR3 DIMM sockets supporting up to 32 GB of system memory ◆ Dual channel memory architecture ◆ Support for DDR3 1333/1666 MHz memory modules ◆ Support for ECC memory modules
LAN	◆ 4 x Intel® I210 supports 10/100/1000 Mbps
Onboard Graphics	◆ ASPEED® AST2300 supports 128MB VRAM
Storage Interface	◆ 2 x SATA 3Gb/s connectors ◆ 4 x SATA 6Gb/s connectors ◆ Support for Intel IRSTe SATA RAID 0, RAID 1, RAID 5, RAID 10
USB	◆ Up to 5 USB 2.0 ports (2 on the back panel, 1 Type A connector, 2 via the USB brackets connected to the internal USB headers) ◆ Up to 6 USB 3.0 ports (4 on the back panel, 2 via the USB brackets connected to the internal USB headers)
Expansion Slots	◆ 1 x PCI Express x16 slot, running at x1 (Gen2/PCIE_4) ◆ 1 x PCI Express x16 slot, running at x16 (Gen3/PCIE_1) ◆ 1 x PCI Express x16 slot, running at x8 (Gen3/PCIE_3/The slot shares bandwidth with the PCIE_1 slot. When the PCIE_3 is populated, the PCIE_1 slot will operate at x8 mode.) ◆ 1 x PCI Express x16 slot, running at x4 (Gen3/PCIE_2/The slot shares bandwidth with the PCIE_1 adn PCIE_3 slot. When the PCIE_2 is populated, the PCIE_3 slot will operate at x4 mode, and the PCIE_1 slot will operate at x8 mode) ◆ 3 x PCI 32bit/33MHz slots

PCIE_1	PCIE_2	PCIE_3
x16 mode	x	x
x8 mode	x	x8 mode
x8 mode	x4 mode	x4 mode

Internal Connectors	◆ 1 x 24-pin ATX main power connector ◆ 1 x 8-pin ATX 12V power connector ◆ 2 x SATA 3Gb/s connectors ◆ 4 x SATA 6Gb/s connectors ◆ 1 x CPU fan header ◆ 4 x System fan header ◆ 1 x Front panel header ◆ 1 x PMBus header ◆ 1 x USB 2.0 header ◆ 1 x USB 3.0 header ◆ 1 x Serial port header ◆ 1 x SGPIO header ◆ 1 x Back plane board header ◆ 1 x TPM module connector
Back Panel Connectors	◆ 2 x USB 2.0 ports ◆ 4 x USB 3.0 ports* ◆ 1 x PS/2 connector ◆ 4 x RJ-45 ports ◆ 1 x 10/100 dedicated management LAN port ◆ 1 x COM port ◆ 1 x VGA port ◆ 1 x ID Switch button
I/O Controller	◆ ASPEED® AST2300 chip
Hardware Monitor	◆ System voltage detection ◆ CPU/System temperature detection ◆ CPU/System/Power fan speed detection ◆ CPU overheating warning ◆ CPU/System/Power fan fail warning ◆ CPU/System fan speed control * Whether the CPU/system fan speed control function is supported will depend on the CPU/system cooler you install.
BIOS	◆ 1 x 128 Mbit flash ◆ AMI BIOS
Form Factor	◆ ATX Form Factor; 12 inch x 9.6 inch

* The Etron Stor Turbo software to improve storage device performance. Please refer to driver CD for installing the software.

* If you want to active the rear I/O USB 3.0 ports in Linux RedHat operating system, please update the kernel to the version 2.6.37.

GIGABYTE reserves the right to make any changes to the product specifications and product-related information without prior notice.

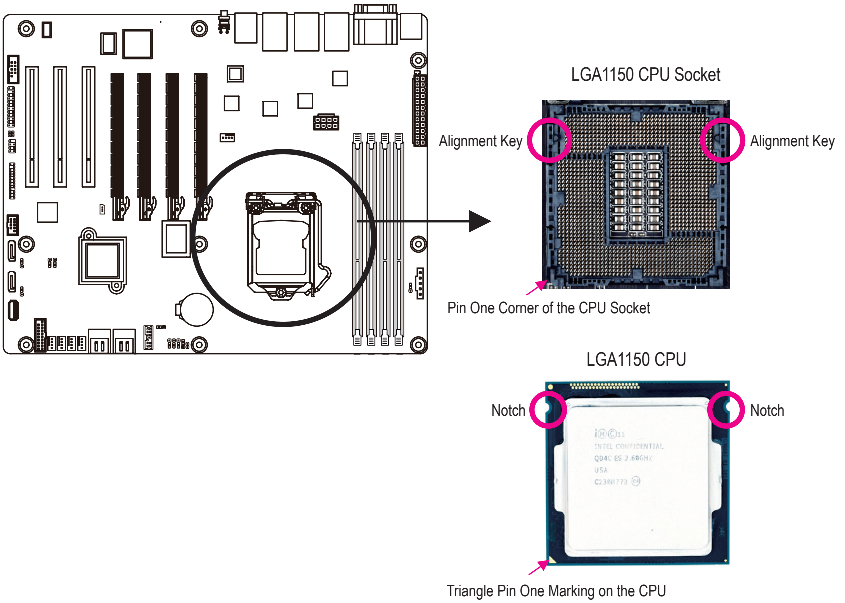
1-3 Installing the CPU and CPU Cooler

Read the following guidelines before you begin to install the CPU:

- Make sure that the motherboard supports the CPU.
  (Go to GIGABYTE's website for the latest CPU support list.)
- Always turn off the computer and unplug the power cord from the power outlet before installing the CPU to prevent hardware damage.
- Locate the pin one of the CPU. The CPU cannot be inserted if oriented incorrectly. (Or you may locate the notches on both sides of the CPU and alignment keys on the CPU socket.)
- Apply an even and thin layer of thermal grease on the surface of the CPU.
- Do not turn on the computer if the CPU cooler is not installed, otherwise overheating and damage of the CPU may occur.
- Set the CPU host frequency in accordance with the CPU specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the standard requirements for the peripherals. If you wish to set the frequency beyond the standard specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.

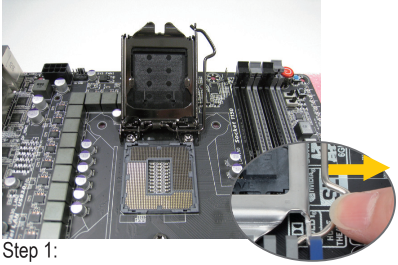
1-3-1 Installing the CPU

A. Locate the alignment keys on the motherboard CPU socket and the notches on the CPU.


LGA1150 CPU Socket
Alignment Key
Alignment Key
Pin One Corner of the CPU Socket
LGA1150 CPU
Notch
Notch
Triangle Pin One Marking on the CPU

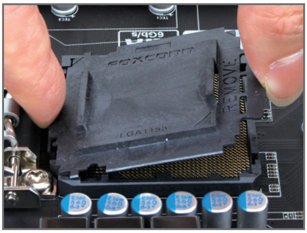
B. Follow the steps below to correctly install the CPU into the motherboard CPU socket.

Before installing the CPU, make sure to turn off the computer and unplug the power cord from the power outlet power plug to prevent any damage to prevent damage to the CPU.



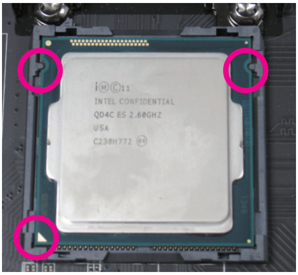
Step 1:

Gently press the CPU socket lever handle down and away from the socket with your finger. Then completely lift the CPU socket lever and the metal load plate will be lifted as well.



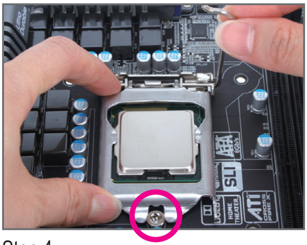
Step 2:

Remove the CPU socket cover as shown. Hold your index finger down on the rear grip of the socket cover and use your thumb to lift up the front edge (next to the "REMOVE" mark) and then remove the cover. (DO NOT touch socket contacts. To protect the CPU socket, always replace the protective socket cover when the CPU is not installed.)



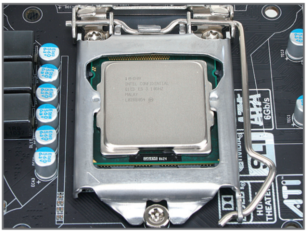
Step 3:

Hold the CPU with your thumb and index fingers. Align the CPU pin one marking (triangle) with the pin one corner of the CPU socket (or you may align the CPU notches with the socket alignment keys) and gently insert the CPU into position.



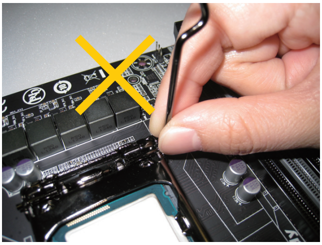
Step 4:

Once the CPU is properly inserted, use one hand to hold the socket lever and use the other to lightly replace the load plate. When replacing the load plate, make sure the front end of the load plate is under the shoulder screw.



Step 5:

Push the CPU socket lever back into its locked position.

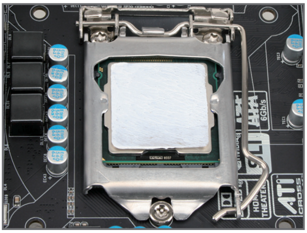


NOTE:

Hold the CPU socket lever by the handle, not the lever base portion.

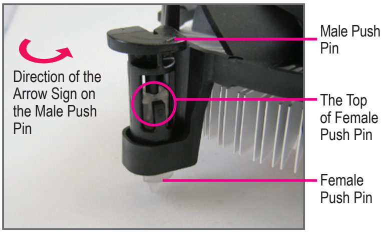
1-3-2 Installing the CPU Cooler

Follow the steps below to correctly install the CPU cooler on the motherboard. (The following procedure uses Intel® boxed cooler as the example cooler.)



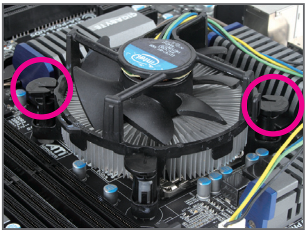
Step 1:

Apply an even and thin layer of thermal paste on the surface of the installed CPU.


Direction of the Arrow Sign on the Male Push Pin
Male Push Pin
The Top of Female Push Pin
Female Push Pin

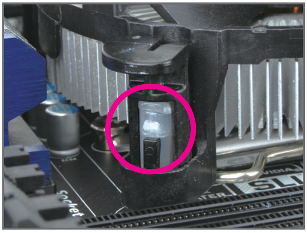
Step 2:

Before installing the cooler, note the direction of the arrow sign ↪ on the male push pin. (Turning the push pin along the direction of the arrow is for removing the cooler, and the opposite direction is for installing it..)



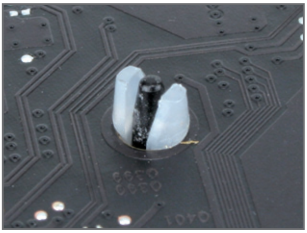
Step 3:

Place the cooler atop the CPU, aligning the four push pins through the pin holes on the motherboard. Push down on the push pins diagonally.



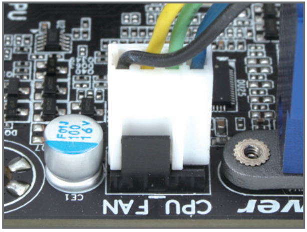
Step 4:

You should hear a "click" when pushing down each push pin. Check that the Male and Female push pins are joined closely. (Refer to your CPU cooler installation manual for instructions on installing the cooler.)



Step 5:

After the installation, check the back of the motherboard. If the push pin is inserted as the picture above shows, the installation is complete.



Step 6:

Finally, attach the power connector of the CPU cooler to the CPU fan header (CPU_FAN) on the motherboard.

Use extreme care when removing the CPU cooler because the thermal grease/tape between the CPU cooler and CPU may adhere to the CPU. Inadequately removing the CPU cooler may damage the CPU.

1-4 Installing the Memory

Read the following guidelines before you begin to install the memory:

- Make sure that the motherboard supports the memory. It is recommended that memory of the same capacity, brand, speed, and chips be used.
- Always turn off the computer and unplug the power cord from the power outlet before installing the memory to prevent hardware damage.
- Memory modules have a foolproof design. A memory module can be installed in only one direction. If you are unable to insert the memory, switch the direction.

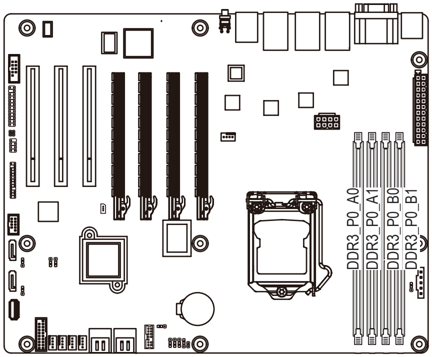
1-4-1 Dual Channel Memory Configuration

This motherboard provides four DDR3 memory sockets and supports Dual Channel Technology. When the memory is installed, the BIOS will automatically detect the specifications and capacity of the memory. Enabling Dual Channel memory mode will double the original memory bandwidth.

The four DDR3 memory sockets are divided into two channels and each channel has two memory sockets as following:

Channel 1: DDR3_P0, A0, DDR3_P0, A1

Channel 2: DDR3_P0, B0, DDR3_P0, B1



Total Capacity	DIMMA0	DIMMA1	DIMMB0	DIMMB1
1G				1G
2G		1G		1G
4G	1G	1G	1G	1G
2G				2G
4G		2G		2G
8G	2G	2G	2G	2G
4G				4G
8G		4G		4G
16G	4G	4G	4G	4G
32G	8G	8G	8G	8G

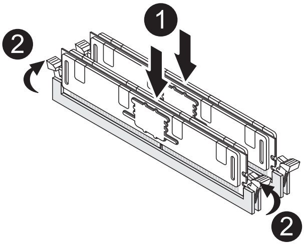
Due to CPU limitations, read the following guidelines before installing the memory in Dual Channel mode.

1. Dual Channel mode cannot be enabled if only one DDR3 memory module is installed.
2. When enabling Dual Channel mode with two or four memory modules, it is recommended that memory of the same capacity, brand, speed, and chips be used for optimum performance.

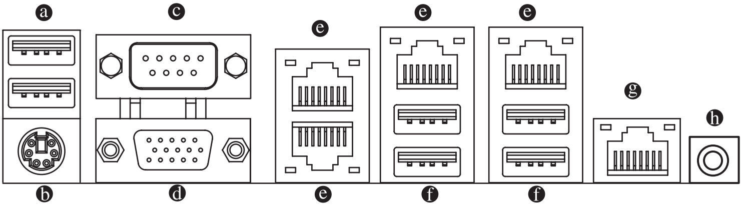
1-4-2 Installing a Memory

Before installing a memory module, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the memory module.
Be sure to install DDR3 DIMMs on this motherboard.

Installation Step:
Step 1. Insert the DIMM memory module vertically into the DIMM slot, and push it down.
Step 2. Close the plastic clip at both edges of the DIMM slots to lock the DIMM module.
NOTE! DIMM must be populated in order starting from DIMM1A socket.
For dual-channel operation, DIMMs must be installed in matched pairs.
Step 3. Reverse the installation steps when you wish to remove the DIMM module.



1-5 Back Panel Connectors



ⓐ **USB 2.0/1.1 Port**

The USB port supports the USB 2.0/1.1 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

ⓑ **PS/2 Keyboard/Mouse Port**

Coonnect a PS/2 keyboard or mouse to this port.

ⓒ **Serial Port**

Connects to serial-based mouse or data processing devices.

ⓓ **Video Port**

The video in port allows connect to video in, which can also apply to video loop thru function.

ⓔ **RJ-45 LAN Port**

The Gigabit Ethernet LAN port provides Internet connection at up to 1 Gbps data rate. The following describes the states of the LAN port LEDs.

ⓕ **USB 3.0 Port**

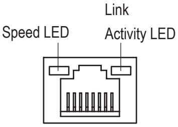
The USB port supports the USB 3.0 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

ⓖ **KVM Server Management 10/100 LAN Port**

The LAN port provides Internet connection with data transfer speeds of 10/100Mbps.

ⓗ **ID Switch Button**

This button provide the selected unit idenfication function.



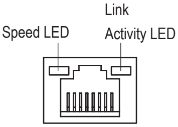
10/100 LAN Port

MLAN Speed LED:

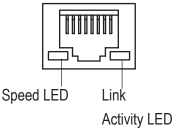
State	Description
Green On	100 Mbps data rate
Green Blink	10 Mbps or 100 Mbps data rate
Off	10 Mbps data rate

Link/Activity LED:

State	Description
On	Link between system and network or no access
Blinking	Data transmission or receiving is occurring
Off	No data transmission or receiving is occurring



10/100/1000 LAN Port



I210 Speed LED:

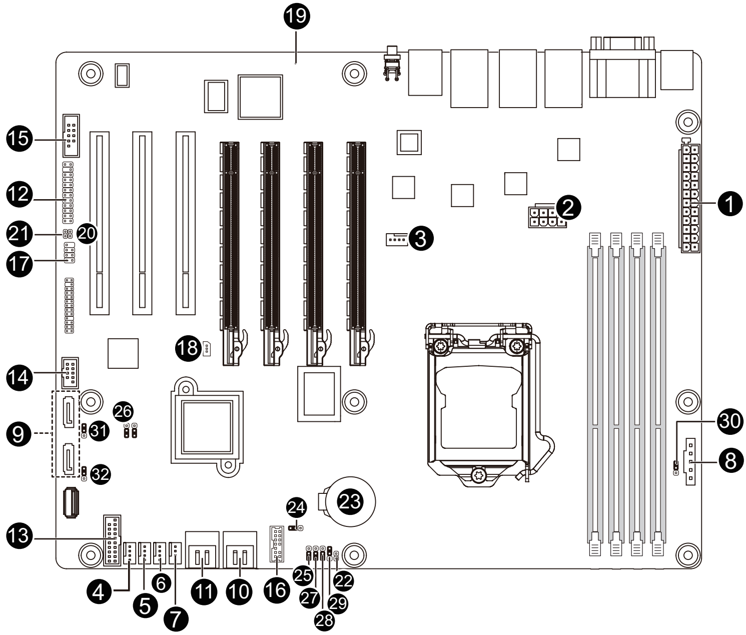
State	Description
Yellow On	1 Gbps data rate
Yellow Blink	Identify 1 Gbps data rate
Green On	100 Mbps data rate
Green Blink	Identify 100 Mbps data rate
Off	10 Mbps data rate

Link/Activity LED:

State	Description
On	Link between system and network or no access
Blinking	Data transmission or receiving is occurring
Off	No data transmission or receiving is occurring

- When removing the cable connected to a back panel connector, first remove the cable from your device and then remove it from the motherboard.
- When removing the cable, pull it straight out from the connector. Do not rock it side to side to prevent an electrical short inside the cable connector.

1-6 Internal Connectors



1)	P1	17)	SGPIO
2)	P2	18)	IPMB1
3)	CPU0_FAN1 (CPU Fan)	19)	BMC_LED2
4)	SYS_FAN1 (System Fan)	20)	LAN3
5)	SYS_FAN2 (System Fan)	21)	LAN4
6)	SYS_FAN3 (System Fan)	22)	JP2
7)	SYS_FAN4 (System Fan)	23)	BAT
8)	PMBUS_CN_1	24)	J_CLRCMOS
9)	SATA0/1	25)	J_MEUPDATE
10)	SATA23	26)	J_HDA_SDO1
11)	SATA45	27)	J_PASSWORD
12)	FP_1	28)	J_BIOSRCVR
13)	F_USB3_1	29)	J_S3MASK
14)	F_USB1	30)	PMBUS_SEL1
15)	COM2	31)	SATA_DOM1
16)	TPM_MEZZ1	32)	SATA_DOM2

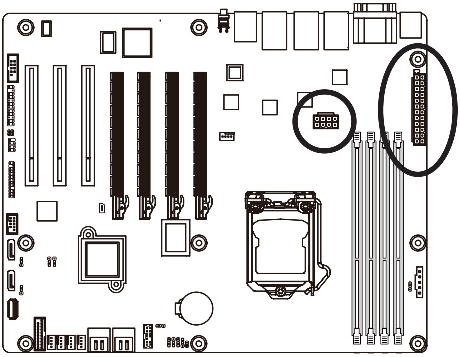
Read the following guidelines before connecting external devices:

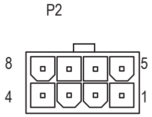
- First make sure your devices are compliant with the connectors you wish to connect.
- Before installing the devices, be sure to turn off the devices and your computer. Unplug the power cord from the power outlet to prevent damage to the devices.
- After installing the device and before turning on the computer, make sure the device cable has been securely attached to the connector on the motherboard.

1/2) P1/P2 (2x12 Main Power Connector and 2x4 12V Power Connector)

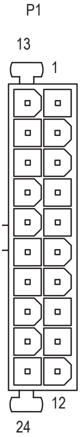
With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, first make sure the power supply is turned off and all devices are properly installed. The power connector possesses a foolproof design. Connect the power supply cable to the power connector in the correct orientation. The 12V power connector mainly supplies power to the CPU. If the 12V power connector is not connected, the computer will not start.

To meet expansion requirements, it is recommended that a power supply that can withstand high power consumption be used (500W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable or unbootable system.





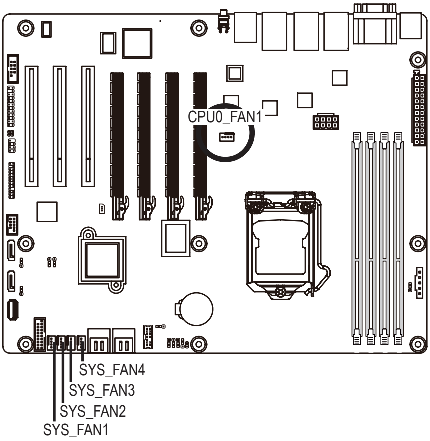
Pin No.	Definition
1	GND
2	GND
3	GND
4	GND
5	+12V
6	+12V
7	+12V
8	+12V

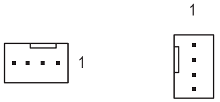


Pin No.	Definition	Pin No.	Definition
1	3.3V	13	3.3V
2	3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power Good	20	-5V
9	5VSB (stand by +5V)	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	3.3V	24	GND

3/4/5/6/7) CPU0_FAN1/SYS_FAN1/SYS_FAN2/SYS_FAN3/SYS_FAN4
(CPU Fan/System Fan Headers)

The motherboard has a 4-pin CPU fan header (CPU0_FAN1), and four 4-pin (SYS_FAN1/SYS_FAN2/SYS_FAN3/SYS_FAN4) system fan headers. Most fan headers possess a foolproof insertion design. When connecting a fan cable, be sure to connect it in the correct orientation (the black connector wire is the ground wire). The motherboard supports CPU fan speed control, which requires the use of a CPU fan with fan speed control design. For optimum heat dissipation, it is recommended that a system fan be installed inside the chassis.

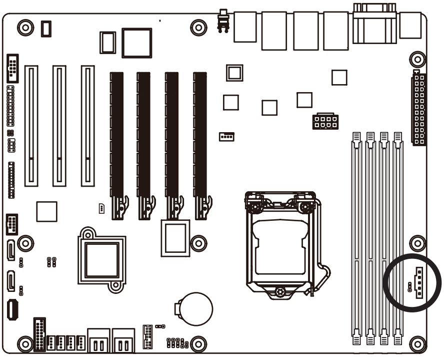


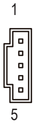


Pin No.	Definition
1	GND
2	+12V
3	Sense
4	Speed Control

- Be sure to connect fan cables to the fan headers to prevent your CPU and system from overheating. Overheating may result in damage to the CPU or the system may hang.
- These fan headers are not configuration jumper blocks. Do not place a jumper cap on the headers.

8) PMBUS_CN_1 (PMBus connector)

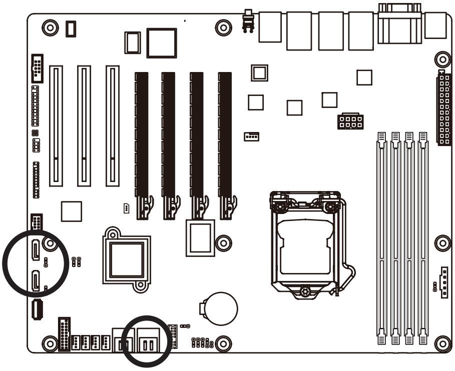


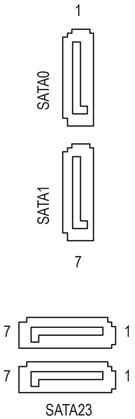


Pin No.	Definition
1	SMB CLK
2	SMB DATA
3	SMB Alert
4	GND
5	3.3V Sense

9/10) SATA0/SATA1/SATA23 (SATA 6Gb/s Connectors)

The SATA connectors conform to SATA 6Gb/s standard and are compatible with SATA 3Gb/s and 1.5Gb/s standard. Each SATA connector supports a single SATA device.





When SATA_DOM0/1 jumper are set to **2-3 pin:**

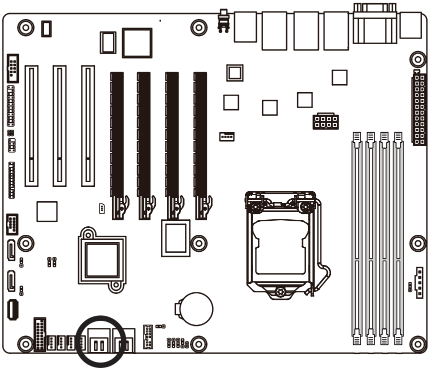
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

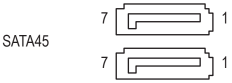
When SATA_DOM0/1 jumper are set to **1-2 pin**:

Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	P5V

11) SATA45 (SATA 3Gb/s Connectors)

The SATA connectors conform to SATA 3Gb/s standard and are compatible with SATA 1.5Gb/s standard. Each SATA connector supports a single SATA device.





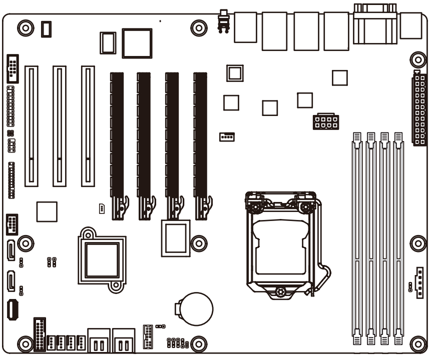
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

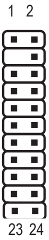
- A RAID 0 or RAID 1 configuration requires at least two hard drives. If more than two hard drives are configured, the total number of hard drives must be an even number.
- A RAID 10 configuration requires four hard drives.

(Note) When a RAID configuration is built across the SATA 6Gb/s channels, the system performance of the RAID configuration may vary depends on the devices are connected.

12) FP_1 (Front Panel Header)

Connect the power switch, reset switch, chassis intrusion switch/sensor and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.



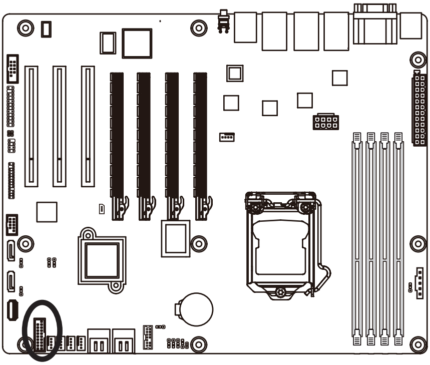


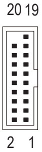
Pin No.	Signal Name	Definition
1	PWLED+	Power LED Signal anode (+)
2	5VSB	5V Stanndby Power
3	NC	No Pin
4	ID_LED+	ID LED Signal anode (+)
5	PWLED-	Power LED Signal cathode(-)
6	ID_LED-	ID LED Signal cathode(-)
7	HD+	Hard Disk LED Signal anode (+)
8	F_SYSRDY	System Front board LED Signal
9	HD- (GND)	Ground
10	SYS_STATUS-	System Status LED Signal cathode(-)
11	PWB+	Power Button Signal anode (+)
12	L2_ACT	LAN2 active LED Signal
13	PWB+_GND	Ground
14	L2_LINK-	LAN2 Link LED Signal cathode(-)
15	RST_BTN+	Reset button Signal anode (+)
16	SENSOR_SDA	SMBus Data Signal
17	RST_BTN_GND	Ground
18	SENSOR_SCL	SMBus Clock Signal
19	ID_SW+	ID Switch Signal anode (+)
20	CASE_OPEN-	Chassis intrusion Signal cathode(-)
21	ID_SW (GND)	Ground
22	L1_ACT	LAN1 active LED Signal
23	NMI_SW-	NMI switch Signal cathode(-)
24	L1_LINK-	LAN1 Link LED Signal cathode(-)

The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

13) F_USB3_1 (USB 3.0 Header)

The headers conform to USB 3.0 specification. Each USB header can provide two USB ports via an optional USB bracket. For purchasing the optional USB bracket, please contact the local dealer.

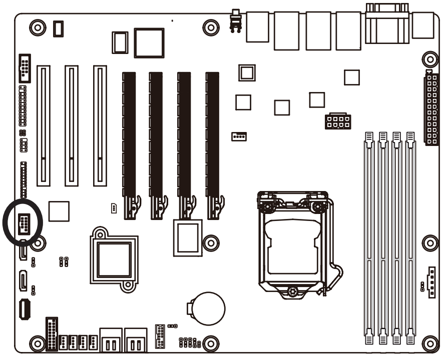


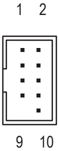


Pin No.	Definition
1	Power
2	IntA_P1_SSRX-
3	IntA_P1_SSRX+
4	GND
5	IntA_P1_SSTX-
6	IntA_P1_SSTX+
7	GND
8	IntA_P1_D-
9	IntA_P1_D+
10	NC
11	IntA_P2_D+
12	IntA_P2_D-
13	GND
14	IntA_P2_SSTX+
15	IntA_P2_SSTX-
16	GND
17	IntA_P2_SSRX+
18	IntA_P2_SSRX-
19	Power
20	No Pin

14) F_USB1 (Front USB Header)

The headers conform to USB 2.0/1.1 specification. Each USB header can provide two USB ports via an optional USB bracket. For purchasing the optional USB bracket, please contact the local dealer.

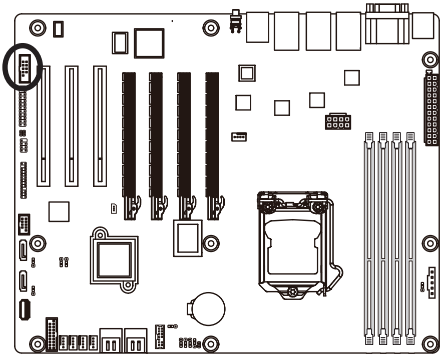


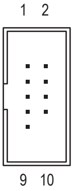


Pin No.	Definition
1	Power (5V)
2	Power (5V)
3	USB DX-
4	USB DY-
5	USB DX+
6	USB DY+
7	GND
8	GND
9	No Pin
10	NC

15) COM2 (Serial Port Header)

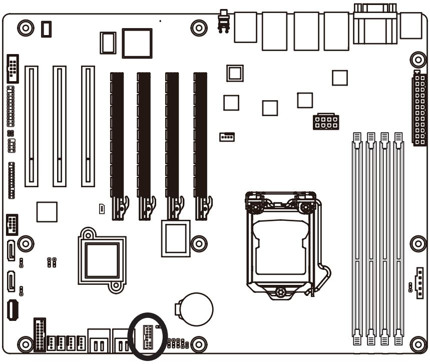
The COM header can provide one serial port via an optional COM port cable. For purchasing the optional COM port cable, please contact the local dealer.

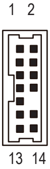




Pin No.	Definition
1	NDCD-
2	NDSR-
3	NSIN
4	NRST-
5	NSOUT
6	NCTS-
7	NDTR-
8	NRI
9	GND
10	No Pin

16) TPM_MEZZ1 (TPM Module connector)

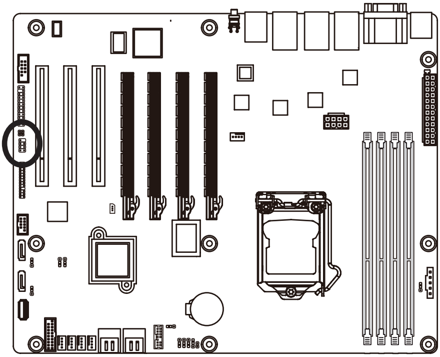


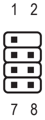


Pin No.	Definition
1	CLK_33M_TPM
2	P_3V3_AUX
3	LPC_RST_DEBUG
4	P3V3
5	LPC_LAD0
6	IRQ_SERIAL
7	LPC_LAD1
8	TPM_DET_N
9	LPC_LAD2
10	NC
11	LPC_LAD3
12	GND
13	LPC_FRAME_N
14	GND

17) SGPIO (SATA SGPIO Header)

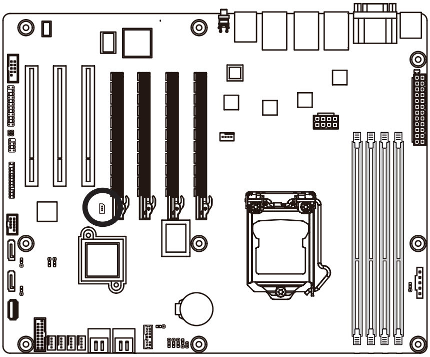
SGPIO is stands for Serial General Purpose Input/Output which is a 4-signal (or 4-wire) bus used between a Host Bus Adapter (HBA) and a backplane. Out of the 4 signals, 3 are driven by the HBA and 1 is driven by the backplane. Typically, the HBA is a storage controller located inside a server, desktop, rack or workstation computer that interfaces with Hard disk drives (HDDs) to store and retrieve data.

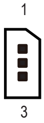




Pin No.	Definition
1	SGPIO_SATA_DATAIN
2	No Pin
3	SGPIO_SATA_DATAOUT
4	GND
5	GND
6	SGPIO_SATA_LOAD
7	NC
8	SGPIO_SATA_CLOCK

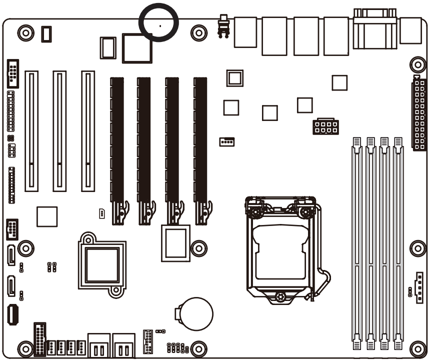
18) IPMB1 (IPMB connector)





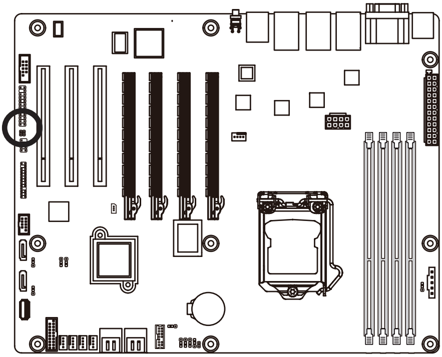
Pin No.	Definition
1	SCL
2	GND
3	SDA

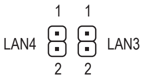
19) BMC_LED2 (BMC Firmware Readiness LED)



State	Description
On	BMC firmware is initial
Blinking	BMC firmware is ready
Off	System is powered off

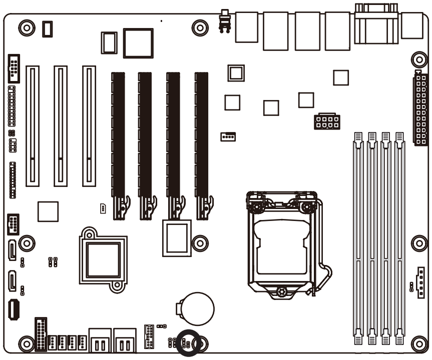
20/21) LAN3/LAN4(LAN3/LAN4 link/active LED Headers)





Pin No.	Definition
1	3.3V
2	Active

22) JP2 (Case open intrusion header)

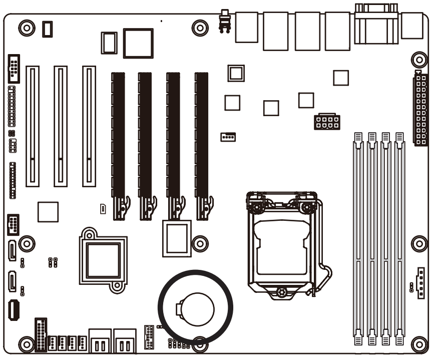


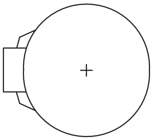
Open: Active chassis intrusion alert.

Closed: Normal operation.

23) BAT (Battery)

The battery provides power to keep the values (such as BIOS configurations, date, and time information) in the CMOS when the computer is turned off. Replace the battery when the battery voltage drops to a low level, or the CMOS values may not be accurate or may be lost.

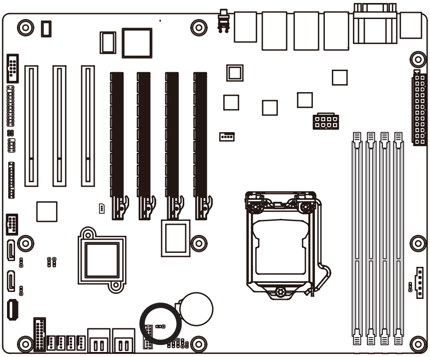


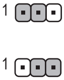


- Always turn off your computer and unplug the power cord before replacing the battery.
- Replace the battery with an equivalent one. Danger of explosion if the battery is replaced with an incorrect model.
- Contact the place of purchase or local dealer if you are not able to replace the battery by yourself or uncertain about the battery model.
- When installing the battery, note the orientation of the positive side (+) and the negative side (-) of the battery (the positive side should face up).
- Used batteries must be handled in accordance with local environmental regulations.

24) J_CLRCMOS (Clearing CMOS Jumper)

Use this jumper to clear the CMOS values (e.g. date information and BIOS configurations) and reset the CMOS values to factory defaults. To clear the CMOS values, place a jumper cap on the two pins to temporarily short the two pins or use a metal object like a screwdriver to touch the two pins for a few seconds.



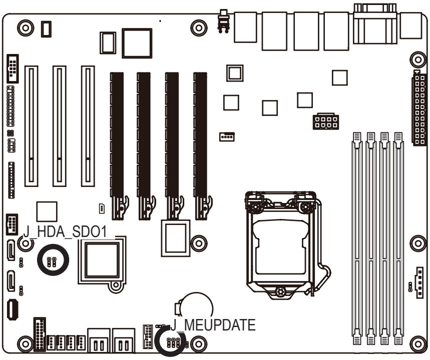


1-2 Close: Normal operation (Default setting)

2-3 Close: Clear CMOS data

- Always turn off your computer and unplug the power cord from the power outlet before clearing the CMOS values.
- After clearing the CMOS values and before turning on your computer, be sure to remove the jumper cap from the jumper. Failure to do so may cause damage to the motherboard.
- After system restart, go to BIOS Setup Exit menu and load factory defaults (select **Load Default Values**) or manually configure the BIOS settings (refer to Chapter 2, "BIOS Setup," for BIOS configurations).

25/26) J_MEUPDATE/J_HDA_SDO1 (ME Recover Jumpers)



J_MEUPDATE

1-2 Close: Normal operation (Default setting)

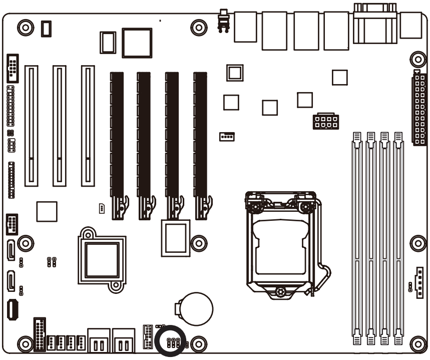
2-3 Close: ME recovery mode.

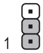
J_HDA_SDO_1

1-2 Close: ME recovery mode.

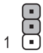
2-3 Close: Normal operation (Default setting)

27) J_PASSWORD (Clearing Supervisor Password Jumper)



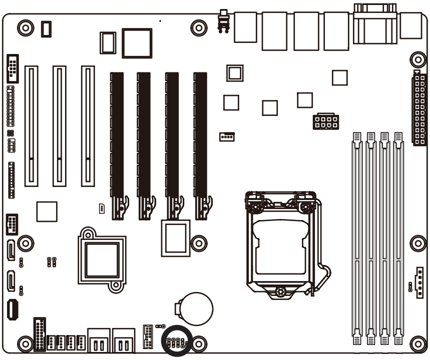


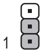
1-2 Close: Normal operation. (Default setting)



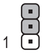
2-3 Close: Clear supervisor password.

28) J_BIOSRVCR (BIOS Recovery Jumper)



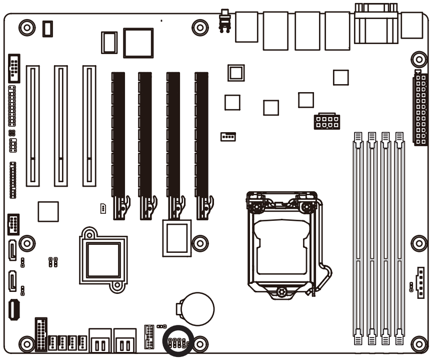


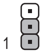
1-2 Close: Normal operation. (Default setting)



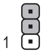
2-3 Close: BIOS recovery mode.

29) J_S3MASK (S3 Power On Select Jumper)



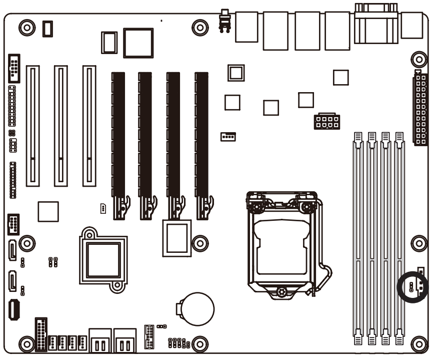


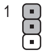
1-2 Close: Stop an initial power on when BMC is not ready.



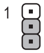
2-3 Close: Keep initial power on. (Default setting)

30) PMBUS_SEL1 (PMBus Power Select Jumper)





1-2 Close: PMBus connects to PCH.



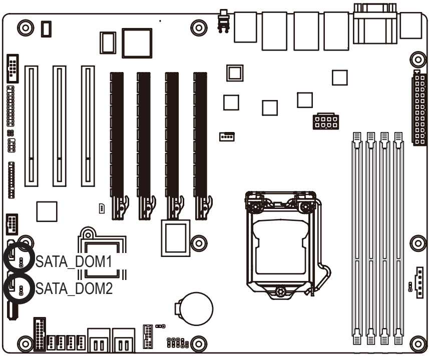
2-3 Close: PMBus connects to BMC.
(Default setting)

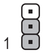
31/32) SATA_DOM1/SATA_DOM2 (SATA port 0 and port 1 DOM Jumpers)

CAUTION!

- If the SATA DOM power is supplied by the motherboard, set the jumper to pin 1-2.
- If the SATA DOM power is supplied by external power, set the jumper to pin 2-3.
- If a SATA type hard drive is connected to the motherboard, please ensure the jumper is closed and set to **2-3 pins** (Default setting), in order to reduce any risk of hard disk damage.

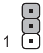
Please refer to the pin definition table in the following.





For SATA_DOM1

Pin No.	Definition
1	P5V
2	SATA_DOM_1
3	GND



For SATA_DOM2

Pin No.	Definition
1	P5V
2	SATA_DOM_2
3	GND

Chapter 2 BIOS Setup

BIOS (Basic Input and Output System) records hardware parameters of the system in the EFI on the motherboard. Its major functions include conducting the Power-On Self-Test (POST) during system startup, saving system parameters and loading operating system, etc. BIOS includes a BIOS Setup program that allows the user to modify basic system configuration settings or to activate certain system features. When the power is turned off, the battery on the motherboard supplies the necessary power to the CMOS to keep the configuration values in the CMOS.

To access the BIOS Setup program, press the <F2> key during the POST when the power is turned on.

- BIOS flashing is potentially risky, if you do not encounter problems of using the current BIOS version, it is recommended that you don't flash the BIOS. To flash the BIOS, do it with caution. Inadequate BIOS flashing may result in system malfunction.
- It is recommended that you not alter the default settings (unless you need to) to prevent system instability or other unexpected results. Inadequately altering the settings may result in system's failure to boot. If this occurs, try to clear the CMOS values and reset the board to default values. (Refer to the **Exit** section in this chapter or introductions of the battery/clearing CMOS jumper in Chapter 1 for how to clear the CMOS values.)

BIOS Setup Program Function Keys

<←><→>	Move the selection bar to select the screen
<↑><↓>	Move the selection bar to select an item
<+>	Increase the numeric value or make changes
<->	Decrease the numeric value or make changes
<Enter>	Execute command or enter the submenu
<Esc>	Main Menu: Exit the BIOS Setup program Submenus: Exit current submenu
<F1>	Show descriptions of general help
<F3>	Restore the previous BIOS settings for the current submenus
<F9>	Load the Optimized BIOS default settings for the current submenus
<F10>	Save all the changes and exit the BIOS Setup program

- **Main**

  This setup page includes all the items in standard compatible BIOS.

- **Advanced**

  This setup page includes all the items of AMI BIOS special enhanced features.

  (ex: Auto detect fan and temperature status, automatically configure hard disk parameters.)

- **Chipset**

  This setup page includes all the submenu options for configuring the function of North Bridge and South Bridge.

  (ex: Auto detect fan and temperature status, automatically configure hard disk parameters.)

- **Security**

  Change, set, or disable supervisor and user password. Configuration supervisor password allows you to restrict access to the system and BIOS Setup.

  A supervisor password allows you to make changes in BIOS Setup.

  A user password only allows you to view the BIOS settings but not to make changes.

- **Server**

  Server additional features enabled/disabled setup menus.

- **Boot**

  This setup page provides items for configuration of boot sequence.

- **Exit**

  Save all the changes made in the BIOS Setup program to the CMOS and exit BIOS Setup. (Pressing <F10> can also carry out this task.)

  Abandon all changes and the previous settings remain in effect. Pressing <Y> to the confirmation message will exit BIOS Setup. (Pressing <Esc> can also carry out this task.)

2-1 The Main Menu

Once you enter the BIOS Setup program, the Main Menu (as shown below) appears on the screen. Use arrow keys to move among the items and press <Enter> to accept or enter other sub-menu.

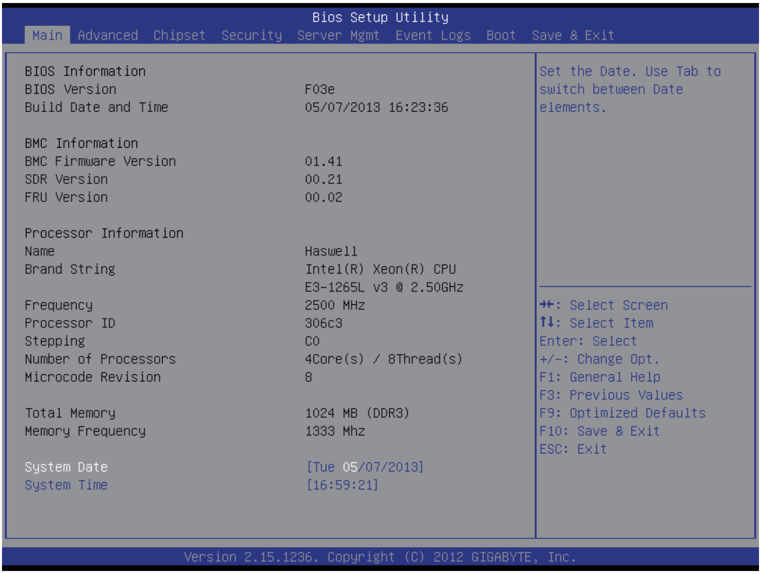
Main Menu Help

The on-screen description of a highlighted setup option is displayed on the bottom line of the Main Menu.

Submenu Help

While in a submenu, press <F1> to display a help screen (General Help) of function keys available for the menu. Press <Esc> to exit the help screen. Help for each item is in the Item Help block on the right side of the submenu.

- When the system is not stable as usual, select the **Restore Defaults** item to set your system to its defaults.
- The BIOS Setup menus described in this chapter are for reference only and may differ by BIOS version.



```
                              Bios Setup Utility
  Main  Advanced  Chipset  Security  Server Mgmt  Event Logs  Boot  Save & Exit

 BIOS Information                                     Set the Date. Use Tab to
 BIOS Version                     F03e                switch between Date
 Build Date and Time              05/07/2013 16:23:36 elements.

 BMC Information
 BMC Firmware Version             01.41
 SDR Version                      00.21
 FRU Version                      00.02

 Processor Information
 Name                             Haswell
 Brand String                     Intel(R) Xeon(R) CPU
                                  E3-1265L v3 @ 2.50GHz
 Frequency                        2500 MHz            →←: Select Screen
 Processor ID                     306c3               ↑↓: Select Item
 Stepping                         C0                  Enter: Select
 Number of Processors             4Core(s) / 8Thread(s) +/-: Change Opt.
 Microcode Revision               8                   F1: General Help
                                                      F3: Previous Values
 Total Memory                     1024 MB (DDR3)      F9: Optimized Defaults
 Memory Frequency                 1333 Mhz            F10: Save & Exit
                                                      ESC: Exit
 System Date                      [Tue 05/07/2013]
 System Time                      [16:59:21]

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```

☞ **BIOS Information**

☞ **BIOS Version**

Display version number of the BIOS setup utility.

☞ **BIOS Build Date and Time**

Displays the date and time when the BIOS setup utility was created.

☞ **BMC Information**

☞ **BMC Firmware Version**

Display version number of the BMC setup utility.

☞ **SDR Version**

Display the SDR version of the BMC setup utility.

☞ **FRU Version**

Display the FRU version of the BMC setup utility.

☞ **Processor Information**

☞ **Name**

Displays the processor type information.

☞ **Brand String**

Displays the processor brand string information.

☞ **Frequency**

Display the frequency information of the installed processor.

☞ **Processor ID**

Display the ID information of the installed processor.

☞ **Stepping**

Display the stepping information of the installed processor.

☞ **Number of Processors**

Display the number of the installed processor.

☞ **Microcode Revision**

Display Microcode revision information.

☞ **Memory Information**

☞ **Total Memory**

Determines how much total memory is present during the POST.

☞ **Memory Frequency**

Display the frequency information of the installed memory.

☞ **System Date**

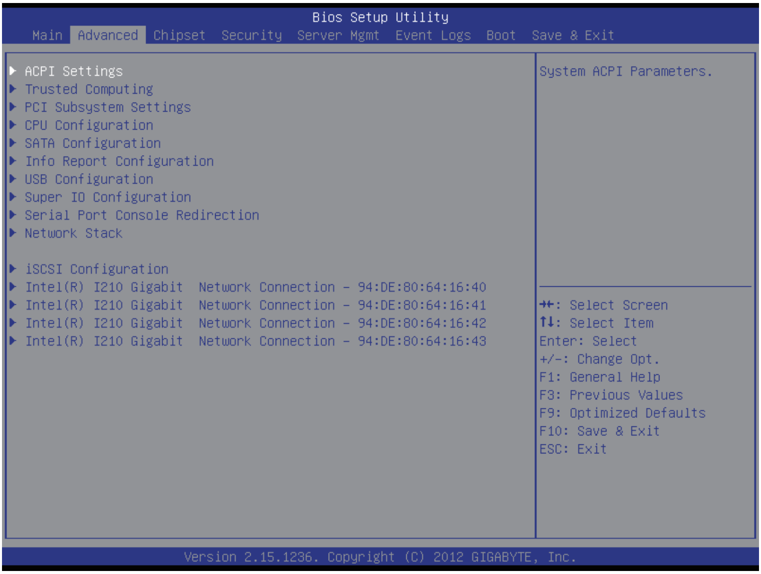
Set the date following the weekday-month-day- year format.

☞ **System Time**

Set the system time following the hour-minute- second format.

2-2 Advanced Menu

The Advanced menu display submenu options for configuring the function of various hardware components. Select a submenu item, then press Enter to access the related submenu screen.



```
                              Bios Setup Utility
  Main  Advanced  Chipset  Security  Server Mgmt  Event Logs  Boot  Save & Exit

▶ ACPI Settings                                                          System ACPI Parameters.
▶ Trusted Computing
▶ PCI Subsystem Settings
▶ CPU Configuration
▶ SATA Configuration
▶ Info Report Configuration
▶ USB Configuration
▶ Super IO Configuration
▶ Serial Port Console Redirection
▶ Network Stack

▶ iSCSI Configuration
▶ Intel(R) I210 Gigabit  Network Connection - 94:DE:80:64:16:40
▶ Intel(R) I210 Gigabit  Network Connection - 94:DE:80:64:16:41         →←: Select Screen
▶ Intel(R) I210 Gigabit  Network Connection - 94:DE:80:64:16:42         ↑↓: Select Item
▶ Intel(R) I210 Gigabit  Network Connection - 94:DE:80:64:16:43         Enter: Select
                                                                         +/-: Change Opt.
                                                                         F1: General Help
                                                                         F3: Previous Values
                                                                         F9: Optimized Defaults
                                                                         F10: Save & Exit
                                                                         ESC: Exit

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```
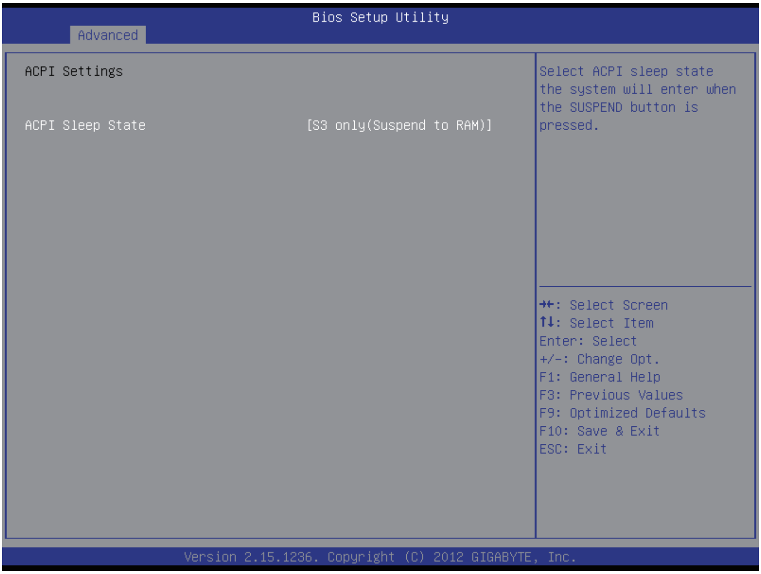

2-2-1 ACPI Configuration


Bios Setup Utility
Advanced

```
ACPI Settings

ACPI Sleep State                    [S3 only(Suspend to RAM)]
```

Select ACPI sleep state the system will enter when the SUSPEND button is pressed.

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
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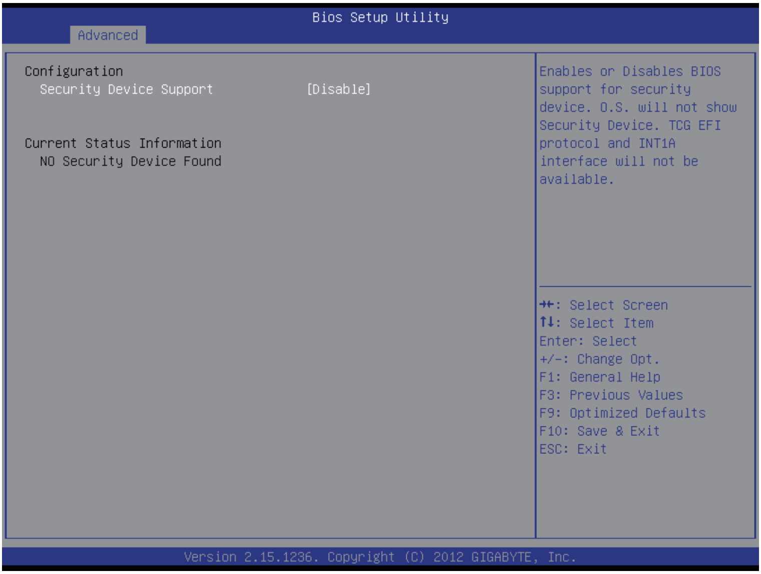
☞ **ACPI Settings**

☞ **ACPI Sleep State**

Select the highest ACPI sleep state the system will enter, when the suspend button is pressed. Options available: Suspend Disabled/S1 only (CPU Stop Clock)/S3 only (Suspend to RAM)/ Both S1 and S3 available for OS to choose from. Default setting is **S3 only (Suspend to RAM)**.

2-2-2 Trusted Computing (Optional)



```
                              Bios Setup Utility
      Advanced

  Configuration                                       Enables or Disables BIOS
    Security Device Support           [Disable]       support for security
                                                      device. O.S. will not show
                                                      Security Device. TCG EFI
  Current Status Information                          protocol and INT1A
    NO Security Device Found                          interface will not be
                                                      available.

                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F3: Previous Values
                                                      F9: Optimized Defaults
                                                      F10: Save & Exit
                                                      ESC: Exit

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```

☞ Configuration

☞ Security Device Support

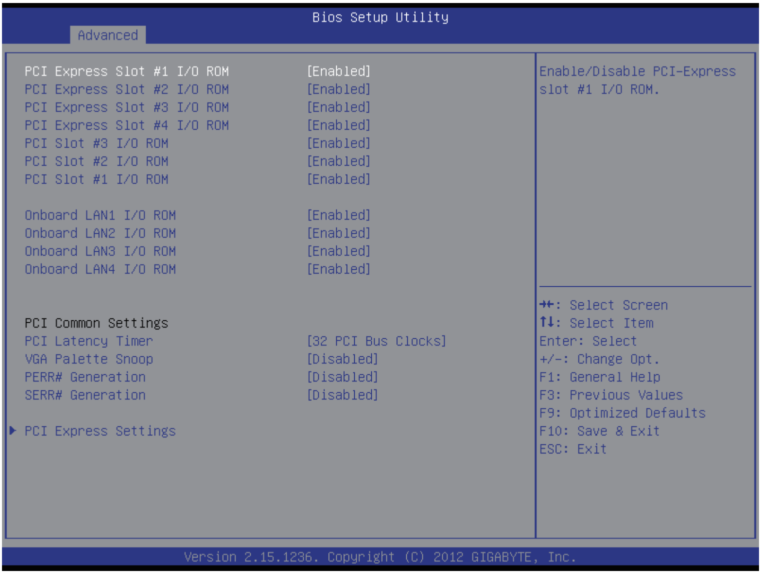
Select Enabled to activate TPM support feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Current Status Information

Display current TPM status information.

2-2-3 PCI Subsystem Settings



```
                              Bios Setup Utility
     Advanced

 PCI Express Slot #1 I/O ROM         [Enabled]            Enable/Disable PCI-Express
 PCI Express Slot #2 I/O ROM         [Enabled]            slot #1 I/O ROM.
 PCI Express Slot #3 I/O ROM         [Enabled]
 PCI Express Slot #4 I/O ROM         [Enabled]
 PCI Slot #3 I/O ROM                 [Enabled]
 PCI Slot #2 I/O ROM                 [Enabled]
 PCI Slot #1 I/O ROM                 [Enabled]

 Onboard LAN1 I/O ROM                [Enabled]
 Onboard LAN2 I/O ROM                [Enabled]
 Onboard LAN3 I/O ROM                [Enabled]
 Onboard LAN4 I/O ROM                [Enabled]

                                                          →←: Select Screen
 PCI Common Settings                                      ↑↓: Select Item
 PCI Latency Timer                   [32 PCI Bus Clocks]  Enter: Select
 VGA Palette Snoop                   [Disabled]           +/-: Change Opt.
 PERR# Generation                    [Disabled]           F1: General Help
 SERR# Generation                    [Disabled]           F3: Previous Values
                                                          F9: Optimized Defaults
▶ PCI Express Settings                                    F10: Save & Exit
                                                          ESC: Exit

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```

☞ PCI Express Slot #1/2/3/4 I/O ROM

When enabled, This setting will initialize the device expansion ROM for the related PCI-E slot.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ PCI Slot #1/2/3 I/O ROM

Enable/Disable PCI slot #1/#2/#3 devices and initialize device expansion ROM.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Onboard LAN #1/#2/#3/#4 I/O ROM

Enable/Disable onboard LAN#1/#2/#3/#4 devices and initialize device expansion ROM.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ PCI Common Settings

☞ PCI Latency Timer

Value to be programmed into PCI Latency Timer Register.
Options available: 32 PCI Bus Clocks/64 PCI Bus Clocks/96 PCI Bus Clocks/128 PCI Bus Clocks/160 PCI Bus Clocks/192 PCI Bus Clocks/224 PCI Bus Clocks/248 PCI Bus Clocks/.
Default setting is **32 PCI Bus Clocks**.

☞ VGA Palette Snoop

Enable/Disable VGA Palette Tegisters Snooping.
Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **PERR Generation**

When this item is set to enabled, PCI bus parity error (PERR) is generated and is routed to NMI.
Options available: Enabled/Disabled. Default setting is **Disabled**.

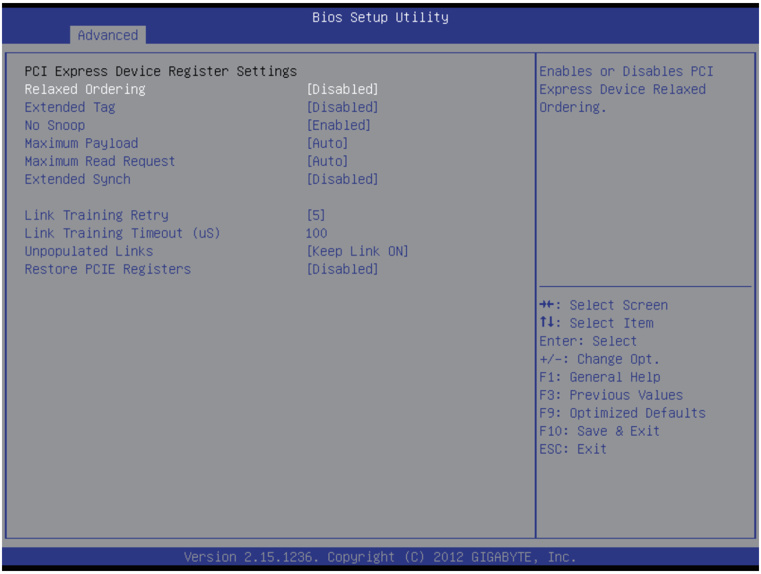
☞ **SERR Generation**

When this item is set to enabled, PCI bus system error (SERR) is generated and is routed to NMI.
Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **PCI Express Settings**

Press [Enter] for configuration of advanced items.

2-2-3-1 PCI Express Settings



```
                              Bios Setup Utility
    Advanced

 PCI Express Device Register Settings                        Enables or Disables PCI
 Relaxed Ordering                     [Disabled]             Express Device Relaxed
 Extended Tag                         [Disabled]             Ordering.
 No Snoop                             [Enabled]
 Maximum Payload                      [Auto]
 Maximum Read Request                 [Auto]
 Extended Synch                       [Disabled]

 Link Training Retry                  [5]
 Link Training Timeout (uS)           100
 Unpopulated Links                    [Keep Link ON]
 Restore PCIE Registers               [Disabled]

                                                             →←: Select Screen
                                                             ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1: General Help
                                                             F3: Previous Values
                                                             F9: Optimized Defaults
                                                             F10: Save & Exit
                                                             ESC: Exit

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```

☞ PCI Express Device Register Settings

☞ Relaxed Ordering

Enable/DIsable PCI Express Device Relaxed Ordering feature.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ Extended Tag

Wnen this feature is enabled, the system will allow device to use 8-bit Tag field as a requester.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ No Snoop

Enable/Disable PCI Express Device No Snoop option.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Maximum Playload

Set maximum playlooad for PCI Express Device or allow system BIOS to select the value.

Options available: Auto/128 Bytes/256 Bytes/512 Bytes/1024 Bytes/2048 Bytes/4096 Bytes.

Default setting is **Auto**.

☞ Maximum Read Request

Set maximum Read Reuest size for PCI Express Device or allow system BIOS to select the value.

Options available: Auto/128 Bytes/256 Bytes/512 Bytes/1024 Bytes/2048 Bytes/4096 Bytes.

Default setting is **Auto**.

☞ Extended Synch

Wnen this feature is enabled, the system will allow generation of Extended Synchronization patterns.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Link Training Retry

Define the number of Retry Attempts software wil take to retrain the link if previous training attempt was unsuccessful. Press <+> / <-> keys to increase or decrease the desired values.

☞ Link Training Timeout (us)

Define the number of Microseconds software will wait before polling 'Link Training' bit in Link Status register. Press <+> / <-> keys to increase or decrease the desired values. Value rang is from 10 to 10000 us.

☞ Unpopulated Links

When this item is set to 'Disable Link, the system will operate power save feature for those unpopulated PCI Express links.

Options available: Keep Link ON/ Disable Link. Default setting is **Keep Link ON**.

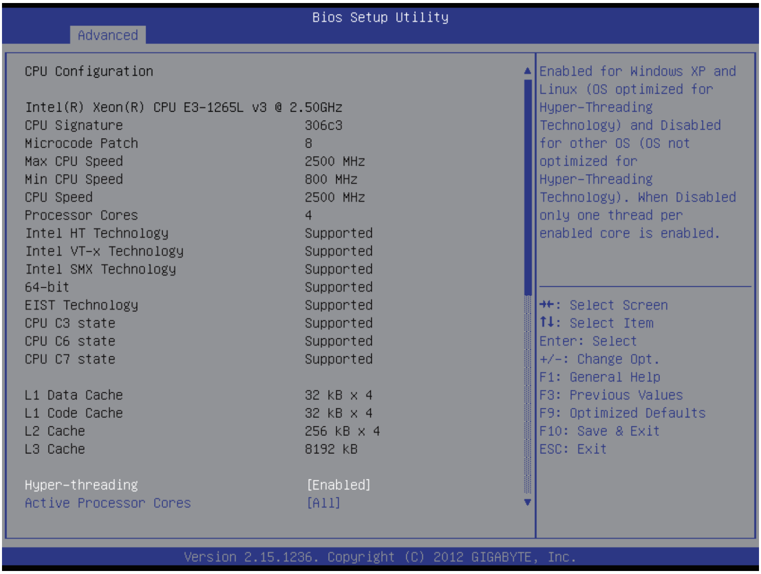
☞ Restore PCIE Registers

When this item is enabled, the system will restore PCI Express device configuration on S3 resume.

Warning: Enabling this may cause issues with other hardware after S3 resume.

Options available: Enabled/Disabled. Default setting is **Disabled**.

2-2-4 CPU Configuration



```
                              Bios Setup Utility
     Advanced

 CPU Configuration                                    Enabled for Windows XP and
                                                      Linux (OS optimized for
 Intel(R) Xeon(R) CPU E3-1265L v3 @ 2.50GHz           Hyper-Threading
 CPU Signature                     306c3              Technology) and Disabled
 Microcode Patch                   8                  for other OS (OS not
 Max CPU Speed                     2500 MHz           optimized for
 Min CPU Speed                     800 MHz            Hyper-Threading
 CPU Speed                         2500 MHz           Technology). When Disabled
 Processor Cores                   4                  only one thread per
 Intel HT Technology               Supported          enabled core is enabled.
 Intel VT-x Technology             Supported
 Intel SMX Technology              Supported
 64-bit                            Supported
 EIST Technology                   Supported          →←: Select Screen
 CPU C3 state                      Supported          ↑↓: Select Item
 CPU C6 state                      Supported          Enter: Select
 CPU C7 state                      Supported          +/-: Change Opt.
                                                      F1: General Help
 L1 Data Cache                     32 kB x 4          F3: Previous Values
 L1 Code Cache                     32 kB x 4          F9: Optimized Defaults
 L2 Cache                          256 kB x 4         F10: Save & Exit
 L3 Cache                          8192 kB            ESC: Exit

 Hyper-threading                   [Enabled]
 Active Processor Cores            [All]

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```

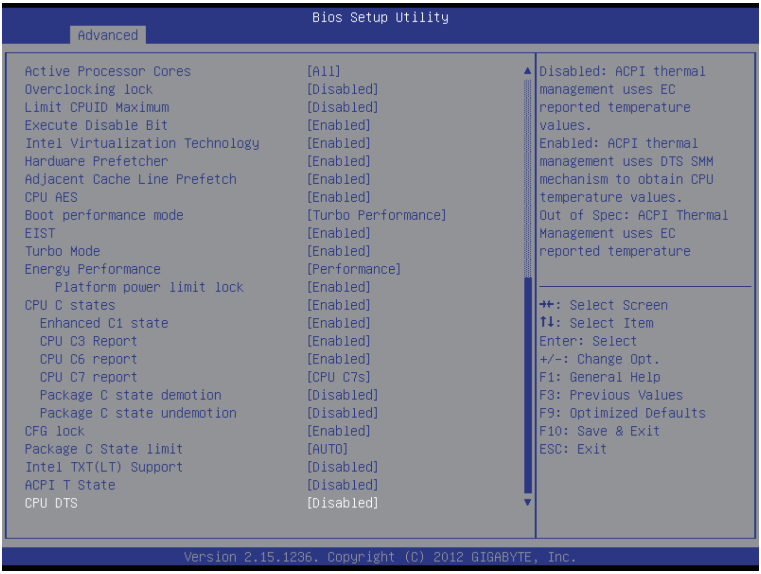

```
                              Bios Setup Utility
     Advanced

 Active Processor Cores            [All]              Disabled: ACPI thermal
 Overclocking lock                 [Disabled]         management uses EC
 Limit CPUID Maximum               [Disabled]         reported temperature
 Execute Disable Bit               [Enabled]          values.
 Intel Virtualization Technology   [Enabled]          Enabled: ACPI thermal
 Hardware Prefetcher               [Enabled]          management uses DTS SMM
 Adjacent Cache Line Prefetch      [Enabled]          mechanism to obtain CPU
 CPU AES                           [Enabled]          temperature values.
 Boot performance mode             [Turbo Performance] Out of Spec: ACPI Thermal
 EIST                              [Enabled]          Management uses EC
 Turbo Mode                        [Enabled]          reported temperature
 Energy Performance                [Performance]
     Platform power limit lock     [Enabled]
 CPU C states                      [Enabled]          →←: Select Screen
   Enhanced C1 state               [Enabled]          ↑↓: Select Item
   CPU C3 Report                   [Enabled]          Enter: Select
   CPU C6 report                   [Enabled]          +/-: Change Opt.
   CPU C7 report                   [CPU C7s]          F1: General Help
   Package C state demotion        [Disabled]         F3: Previous Values
   Package C state undemotion      [Disabled]         F9: Optimized Defaults
 CFG lock                          [Enabled]          F10: Save & Exit
 Package C State limit             [AUTO]             ESC: Exit
 Intel TXT(LT) Support             [Disabled]
 ACPI T State                      [Disabled]
 CPU DTS                           [Disabled]

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```

CPU Configuration

CPU Type/ Signature / Microcode Patch / Max CPU Speed / Min CPU Speed / Processor Cores / Intel HT Technology / Intel VT-x Technology / Intel SMX Technology

Displays the technical specifications for the installed processor.

64-bit

Display the supported information of installed CPU.

EIST Technology

Display Intel EIST Technology function support information.

CPU C3 state

Display the support information of CPU C3 state feature.

CPU C6 state

Display the support information of CPU C6 state feature.

CPU C7 state

Display the support information of CPU C7 state feature.

Cache Information

L1 Data Cache / L1 Code Cache / L2 Cache / L3 Cache

Displays the technical specifications for the installed processor.

Hyper-threading

The Intel Hyper Threading Technology allows a single processor to execute two or more separate threads concurrently. When hyper-threading is enabled, multi-threaded software applications can execute their threads, thereby improving performance.
Options available: Enabled/Disabled. Default setting is **Enabled**.

Active Processor Cores (Note)

Allows you to determine whether to enable all CPU cores.
Options available: All/1/2/3. Default setting is **All**.

Limit CPUID Maximum

When enabled, the processor will limit the maximum COUID input values to 03h when queried, even if the processor suppports a higher CPUID input value.
When disabled, the processor will return the actual maximum CPUID input value of the processor when queried.
Options available: Enabled/Disabled. Default setting is **Disabled**.

Execute Disable Bit

When enabled, the processor prevents the execution of code in data-only memory pages. This provides some protection against buffer overflow attacks.
When disabled, the processor will not restrict code execution in any memory area. This makes the processor more vulnerable to buffer overflow attacks.
Options available: Enabled/Disabled. Default setting is **Enabled**.

Intel Virtualization Technology

Select whether to enable the Intel Virtualization Technology function. VT allows a single platform to run multiple operating systems in independent partitions.
Options available: Enabled/Disabled. Default setting is **Enabled**.

(Note) This item is present only if you install a CPU that supports this feature. For more information about Intel CPUs' unique features, please visit Intel's website.

☞ Overclocking lock

Enable/Disable processor overcllocking lock function.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ Limit CPUID Maximum

When enabled, the processor will limit the maximum CPUID input values to 03h when queried, even if the processor suppports a higher CPUID input value.

When disabled, the processor will return the actual maximum CPUID input value of the processor when queried.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ Execute Disable Bit

When enabled, the processor prevents the execution of code in data-only memory pages. This provides some protection against buffer overflow attacks.

When disabled, the processor will not restrict code execution in any memory area. This makes the processor more vulnerable to buffer overflow attacks.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Intel Virtualization Technology

Select whether to enable the Intel Virtualization Technology function. VT allows a single platform to run multiple operating systems in independent partitions.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Hardware Prefetcher

Select whether to enable the speculative prefetch unit of the processor.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Adjacent Cache Line Prefetch

When enabled, cache lines are fetched in pairs. When disabled, only the required cache line is fetched.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ CPU AES

Enable/Disable CPU Advanced Encryption Standard instructions.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Boot performance mode

Configure the Boot performance mode.

Options available: Turbo Performance/Max Non-Turbo Performance/Max bettery/Max Performance. Default setting is **Turbo Performance**.

☞ EIST (Enhanced Intel SpeedStep Technology)

Conventional Intel SpeedStep Technology switches both voltage and frequency in tandem between high and low levels in response to processor load.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Turbo Mode

When this item is enabled, tje processor will automatically ramp up the clock speed of 1-2 of its processing cores to improve its performance.

When this item is disabled, the processor will not overclock any of its core.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Energy Performance

Energy Performance Bias is Intel CPU function.

The larger value in MSR_ENERGY_PERFORMANCE_BIAS register,
CPU will save more power but lose more performance.
Note: This register will be changed by OS too if OS support it like Windows 2008 or newer Linux.
Options available:
Performance : Write value 0 into MSR_ENERGY_PERFORMANCE_BIAS
Balanced Performance: Write value 7 into MSR_ENERGY_PERFORMANCE_BIAS
Balanced Energy: Write value 11 into MSR_ENERGY_PERFORMANCE_BIAS
Energy Efficient: Write value 15 into MSR_ENERGY_PERFORMANCE_BIAS
Default setting is **Performance**.

Platform power limit lock

Options available: Enabled/Disabled. Default setting is **Enabled**.

CPU C State

Enable/Disable CPU C State feature.
Options available: Enabled/Disabled. Default setting is **Enabled**.

Enhanced C1 state

Enable/Disable C1E State feature.
Options available: Enabled/Disabled. Default setting is **Enabled**.

CPU C3/C6 Report (Note)

Allows you to determine whether to let the CPU enter C3/C6 mode in system halt state. When enabled, the CPU core frequency and voltage will be reduced during system halt state to decrease power consumption. The C3/C6 state is a more enhanced power-saving state than C1.
Options available: Enabled/Disabled. Default setting is **Enabled**.

CPU C7 Report (Note)

Allows you to enable or disable the CPU C7 (ACPI C3) report.
Options available: Disabled/CPU C7/CPU C7s. Default setting is **CPU C7s**.

Package C state demotion

Configure state for the C-State package demotion.
Options available: Enabled/Disabled. Default setting is **Enabled**.

Package C state undemotion

Configure state for the C-State package undemotion.
Options available: Enabled/Disabled. Default setting is **Enabled**.

CFG lock

Options available: Enabled/Disabled. Default setting is **Enabled**.

Package C State Limit

Configure state for the C-State package limit.
Options available: C0/C1/C3/C6/C7/C7s/C8/C9/C10/Auto. Default setting is **Auto**.

Intel TXT (LT) Support

Enable/Disable Intel TXT (LT) support.
Options available: Enabled/Disabled. Default setting is **Disabled**.

(Note) This item is present only if you install a CPU that supports this feature. For more information about Intel CPUs' unique features, please visit Intel's website.

☞ ACPI T State

Enable/Disable ACPI T state support.

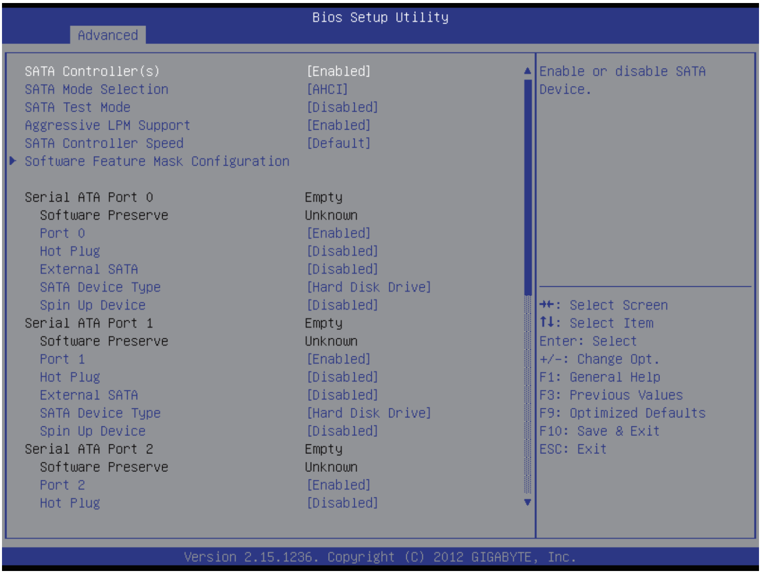
Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ CPU DTS

Enable/Disable CPU DTS support.

Options available: Enabled/Disabled. Default setting is **Disabled**.

2-2-5 SATA Configuration



```
                              Bios Setup Utility
      Advanced

  SATA Controller(s)                     [Enabled]           Enable or disable SATA
  SATA Mode Selection                    [AHCI]              Device.
  SATA Test Mode                         [Disabled]
  Aggressive LPM Support                 [Enabled]
  SATA Controller Speed                  [Default]
▶ Software Feature Mask Configuration

  Serial ATA Port 0                      Empty
    Software Preserve                    Unknown
    Port 0                               [Enabled]
    Hot Plug                             [Disabled]
    External SATA                        [Disabled]
    SATA Device Type                     [Hard Disk Drive]
    Spin Up Device                       [Disabled]          →←: Select Screen
  Serial ATA Port 1                      Empty               ↑↓: Select Item
    Software Preserve                    Unknown             Enter: Select
    Port 1                               [Enabled]           +/-: Change Opt.
    Hot Plug                             [Disabled]          F1: General Help
    External SATA                        [Disabled]          F3: Previous Values
    SATA Device Type                     [Hard Disk Drive]   F9: Optimized Defaults
    Spin Up Device                       [Disabled]          F10: Save & Exit
  Serial ATA Port 2                      Empty               ESC: Exit
    Software Preserve                    Unknown
    Port 2                               [Enabled]
    Hot Plug                             [Disabled]

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```

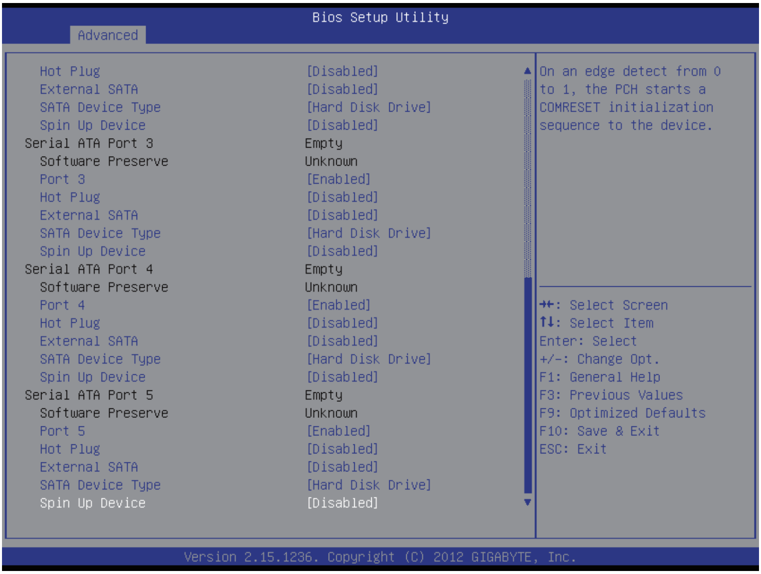

```
                              Bios Setup Utility
      Advanced

    Hot Plug                             [Disabled]          On an edge detect from 0
    External SATA                        [Disabled]          to 1, the PCH starts a
    SATA Device Type                     [Hard Disk Drive]   COMRESET initialization
    Spin Up Device                       [Disabled]          sequence to the device.
  Serial ATA Port 3                      Empty
    Software Preserve                    Unknown
    Port 3                               [Enabled]
    Hot Plug                             [Disabled]
    External SATA                        [Disabled]
    SATA Device Type                     [Hard Disk Drive]
    Spin Up Device                       [Disabled]
  Serial ATA Port 4                      Empty
    Software Preserve                    Unknown
    Port 4                               [Enabled]           →←: Select Screen
    Hot Plug                             [Disabled]          ↑↓: Select Item
    External SATA                        [Disabled]          Enter: Select
    SATA Device Type                     [Hard Disk Drive]   +/-: Change Opt.
    Spin Up Device                       [Disabled]          F1: General Help
  Serial ATA Port 5                      Empty               F3: Previous Values
    Software Preserve                    Unknown             F9: Optimized Defaults
    Port 5                               [Enabled]           F10: Save & Exit
    Hot Plug                             [Disabled]          ESC: Exit
    External SATA                        [Disabled]
    SATA Device Type                     [Hard Disk Drive]
    Spin Up Device                       [Disabled]

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```

SATA Controller(s)

Enable/Disable the SATA controller.

Options available: Enabled/Disabled. Default setting is **Enabled**.

SATA Mode Selection

Select the on chip SATA type.

RAID Mode: When set to RAID, the SATA controllerenables both its RAID and AHCI functions. You will be allows access the RAID setup utility at boot time.

AHCI Mode: When set to AHCI,the SATA controller enables its AHCI functionality. Then the RAID function is disabled and cannot be access the RAID setup utility at boot time.

Options available: RAID/AHCI/Disabled. Default setting is **AHCI Mode**.

SATA Test Mode

Enable/Disable SATA Test Mode.

Options available: Enabled/Disabled. Default setting is **Disabled**.

Aggressive LPM Support

Enable PCH to aggressively enter link power state.

Options available: Enabled/Disabled. Default setting is **Enabled**.

SATA Controller Speed

Indicates the maximum speed that the SATA controller can support.

Options available: Default/Gen1/Gen2/Gen3. Default setting is **Default**.

Software Feature Mask Configuration

Press [Enter] for configuration of advanced items.

Serial Port 0/1/2/3/4/5

The category identifies Serial ATA type of hard disk that are installed in the computer.

System will automatically detect HDD type.

Port 0/1/2/3/4/5

Enable/Disable Port 0/1/2/3/4/5.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Hot Plug (for Serial SATA Port 0/1/2/3/4/5)

Enable/Disable Hot Plug support for Serial ATA Port 0/1/2/3/4/5.

Options available: Enabled/Disabled. Default setting is **Disabled**.

External SATA (for Serial SATA Port 0/1/2/3/4/5)

Enable/Disable External SATA support for Serial ATA Port 0/1/2/3/4/5.

Options available: Enabled/Disabled. Default setting is **Disabled**.

SATA Device Type (for Serial SATA Port 0/1)

Define the SATA Device for Serial ATA Port 0/1.

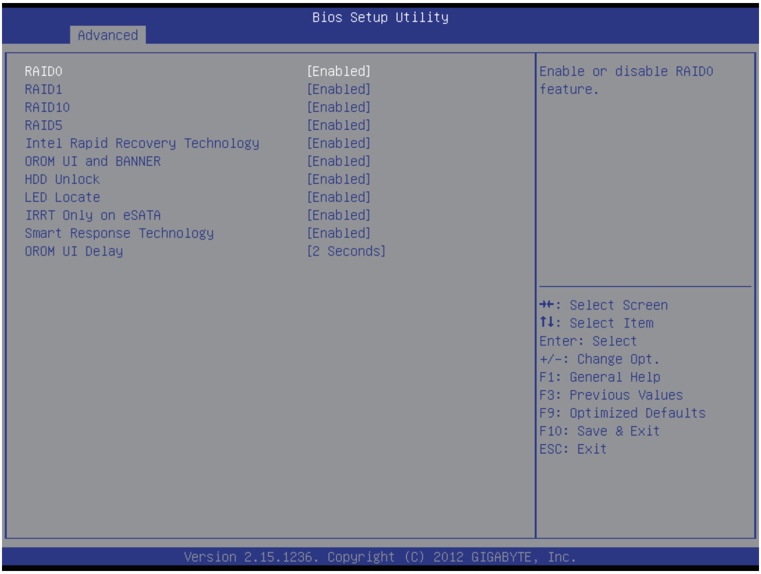
Options available: Hard Disk Drive/Solid State Drive. Default setting is **Disabled**.

Spin Up Device (for Serial SATA Port 0/1/2/3/4/5)

On an edge detect from 0 to 1, the PCH starts a COMreset initialization to the device.

Options available: Enabled/Disabled. Default setting is **Disabled**.

2-2-5-1 Software Feature Mask Configuration



```
                              Bios Setup Utility
       Advanced

  RAID0                                  [Enabled]          Enable or disable RAID0
  RAID1                                  [Enabled]          feature.
  RAID10                                 [Enabled]
  RAID5                                  [Enabled]
  Intel Rapid Recovery Technology        [Enabled]
  OROM UI and BANNER                     [Enabled]
  HDD Unlock                             [Enabled]
  LED Locate                             [Enabled]
  IRRT Only on eSATA                     [Enabled]
  Smart Response Technology              [Enabled]
  OROM UI Delay                          [2 Seconds]

                                                            →←: Select Screen
                                                            ↑↓: Select Item
                                                            Enter: Select
                                                            +/-: Change Opt.
                                                            F1: General Help
                                                            F3: Previous Values
                                                            F9: Optimized Defaults
                                                            F10: Save & Exit
                                                            ESC: Exit

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```

RAID 0

Enable/Disable RAID 0 feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

RAID 1

Enable/Disable RAID 1 feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

RAID 10

Enable/Disable RAID 10 feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

RAID 5

Enable/Disable RAID 5 feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Intel Rapid Recovery Technology

Enable/Disable the Intel Rapid Start Technology (IRSTe) funciton. The IRSTe enables your system to get up and running faster from even the deepest sleep, saving time and power consumption.

Option available: Enabled/Disabled. Default setting is **Disabled**.

Options available: Enabled/Disabled. Default setting is **Enabled**.

OROM UI and BANNER

Enable/Disable OROM UI and BANNER feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ HDD Unlock

When this item is enabled, the HDD password unlock in the OS is enabled.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ LED Locate

When this item is enabled, the LED/SGPIO hardware is attached and ping to locate feature is enabled on the OS.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ IRRT Only on eSATA

When this item is enabled, only IRRT volumes can span internal and eSATA drives. If disabled, then any RAID volue can span internal and eSATA drives
Options available: Enabled/Disabled. Default setting is **Enabled**.

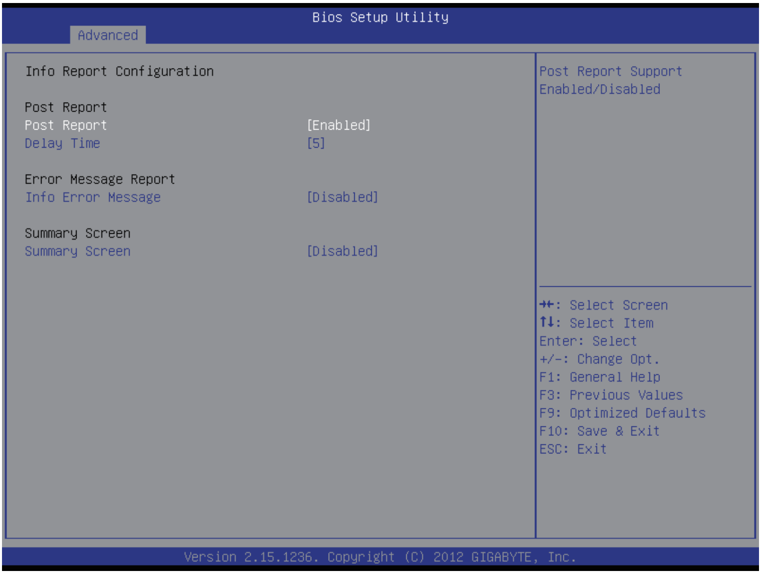
☞ Smart Response Technlogy

Enable/Disable Intel Smart Response Technlogy.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ OROM UI Delay

Options available: 2 Seconds/4 Seconds/6 Seconds/8 Seconds. Default setting is **2 Seconds**.

2-2-6 Info Report Configuration



```
                                   Bios Setup Utility
        Advanced

 Info Report Configuration                                  Post Report Support
                                                            Enabled/Disabled
 Post Report
 Post Report                          [Enabled]
 Delay Time                           [5]

 Error Message Report
 Info Error Message                   [Disabled]

 Summary Screen
 Summary Screen                       [Disabled]

                                                            →←: Select Screen
                                                            ↑↓: Select Item
                                                            Enter: Select
                                                            +/-: Change Opt.
                                                            F1: General Help
                                                            F3: Previous Values
                                                            F9: Optimized Defaults
                                                            F10: Save & Exit
                                                            ESC: Exit

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```

☞ Info Report Configuration

☞ Post Report

Enable/Disable Post Report support.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ Delay Time

Press <+> / <-> keys to increase or decrease the desired values.

☞ Error Message Report

☞ Info Error Message

Enable/Disable Info Error Message support.

Options available: Enabled/Disabled. Default setting is **Disabled**.

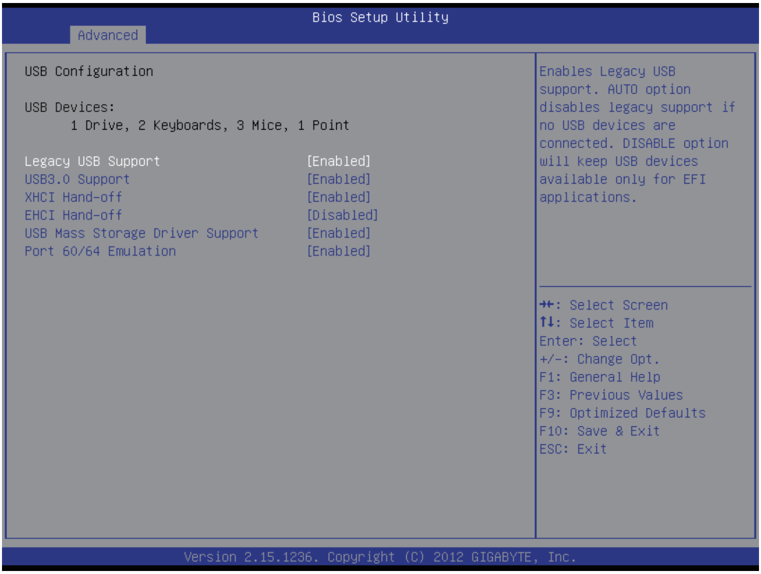
☞ Summary Screen

☞ Summary Screen

Enable/Disable Summary Screen support.

Options available: Enabled/Disabled. Default setting is **Disabled**.

2-2-7 USB Configuration



```
                              Bios Setup Utility
     Advanced
 USB Configuration                                  Enables Legacy USB
                                                    support. AUTO option
 USB Devices:                                       disables legacy support if
       1 Drive, 2 Keyboards, 3 Mice, 1 Point        no USB devices are
                                                    connected. DISABLE option
 Legacy USB Support                  [Enabled]      will keep USB devices
 USB3.0 Support                      [Enabled]      available only for EFI
 XHCI Hand-off                       [Enabled]      applications.
 EHCI Hand-off                       [Disabled]
 USB Mass Storage Driver Support     [Enabled]
 Port 60/64 Emulation                [Enabled]
                                                    →←: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F3: Previous Values
                                                    F9: Optimized Defaults
                                                    F10: Save & Exit
                                                    ESC: Exit

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```

Legacy USB Support

Enables or disables support for legacy USB devices.

Options available: Auto/Enabled/Disabled. Default setting is **Enabled**.

USB30. Support

Enables/Disable USB3.0 (XHCI) controller support.

Options available: Enabled/Disabled. Default setting is **Enabled**.

XHCI Hand-off

Enable/Disable XHCI (USB 3.0) Hand-off support.

Options available: Enabled/Disabled. Default setting is **Enabled**.

EHCI Hand-off

Enable/Disable EHCI (USB 2.0) Hand-off function.

Options available: Enabled/Disabled. Default setting is **Enabled**.

USB Mass Storage Driver Support(Note)

Enable/Disable USB Mass Storage Driver Support.

Options available: Enabled/Disabled. Default setting is **Enabled**.

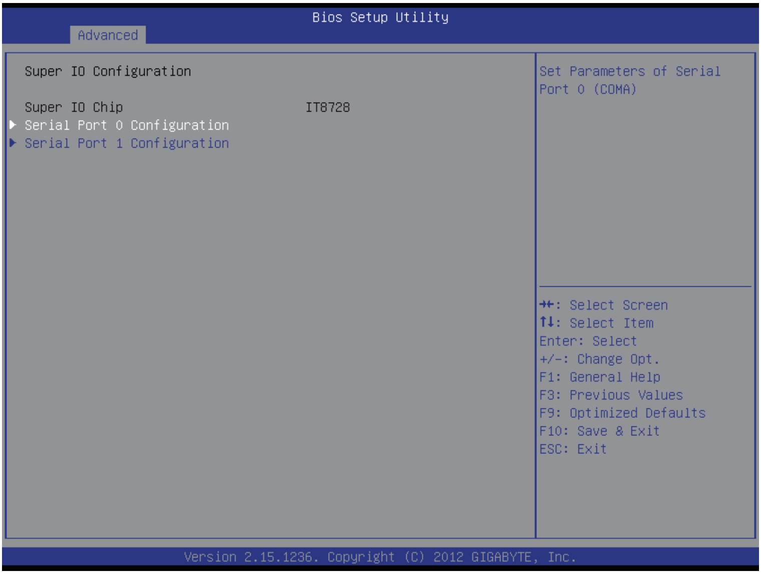
Port 60/64 Emulation

Enable I/O port 60h/64h emulation support. This should be enabled for the complete USB Keyboard Legacy support for non-USB aware OS.

Options available: Enabled/Disabled. Default setting is **Disabled**.

(Note) This item is present only if you attach USB types of device.

2-2-8 Super IO Configuration



```
                         Bios Setup Utility
   Advanced

 Super IO Configuration                        Set Parameters of Serial
                                               Port 0 (COMA)
 Super IO Chip               IT8728
▶ Serial Port 0 Configuration
▶ Serial Port 1 Configuration

                                               →←: Select Screen
                                               ↑↓: Select Item
                                               Enter: Select
                                               +/-: Change Opt.
                                               F1: General Help
                                               F3: Previous Values
                                               F9: Optimized Defaults
                                               F10: Save & Exit
                                               ESC: Exit

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```

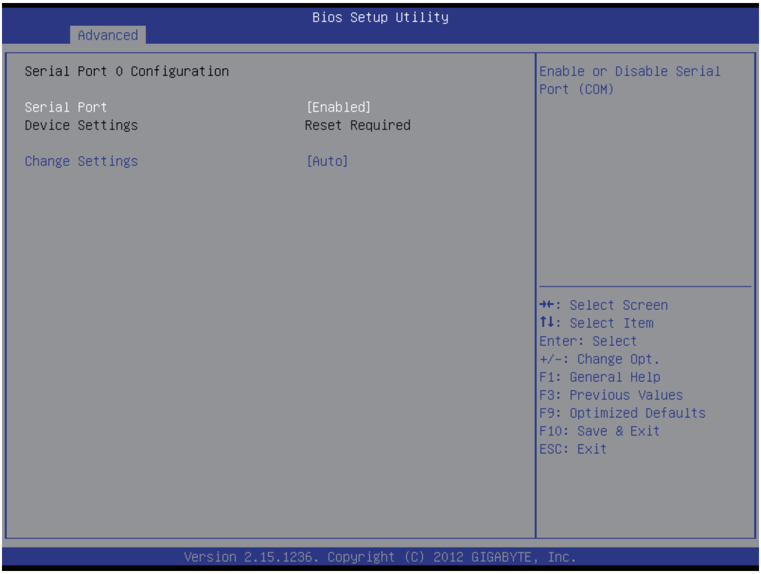

```
                         Bios Setup Utility
   Advanced

 Serial Port 0 Configuration                   Enable or Disable Serial
                                               Port (COM)
 Serial Port                 [Enabled]
 Device Settings             Reset Required

 Change Settings             [Auto]

                                               →←: Select Screen
                                               ↑↓: Select Item
                                               Enter: Select
                                               +/-: Change Opt.
                                               F1: General Help
                                               F3: Previous Values
                                               F9: Optimized Defaults
                                               F10: Save & Exit
                                               ESC: Exit

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```

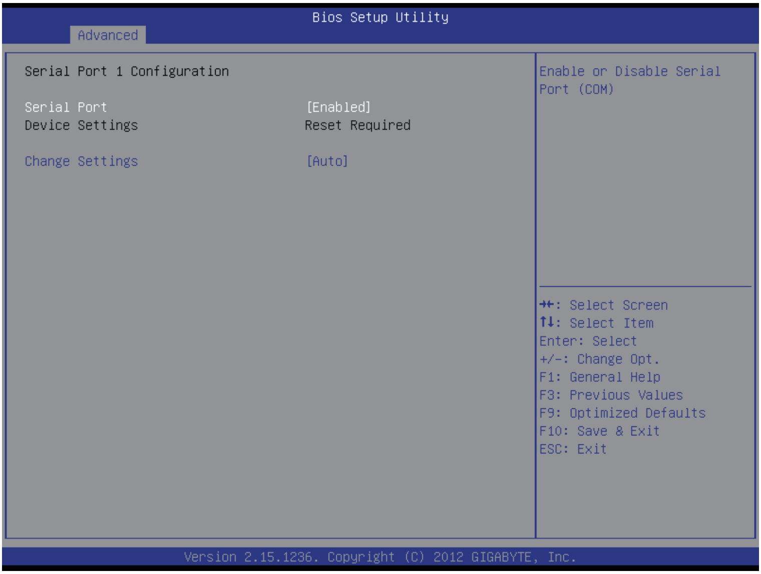

```
                              Bios Setup Utility
        Advanced
 Serial Port 1 Configuration                          Enable or Disable Serial
                                                      Port (COM)
 Serial Port                     [Enabled]
 Device Settings                 Reset Required

 Change Settings                 [Auto]



                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F3: Previous Values
                                                      F9: Optimized Defaults
                                                      F10: Save & Exit
                                                      ESC: Exit

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```

Super IO Chip

Display the model name of Super IO chip.

Serial Port 0/1 Configuration

Serial Port

When enabled allows you to configure the serial port settings. When set to Disabled, displays no configuration for the serial port.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Device Settings

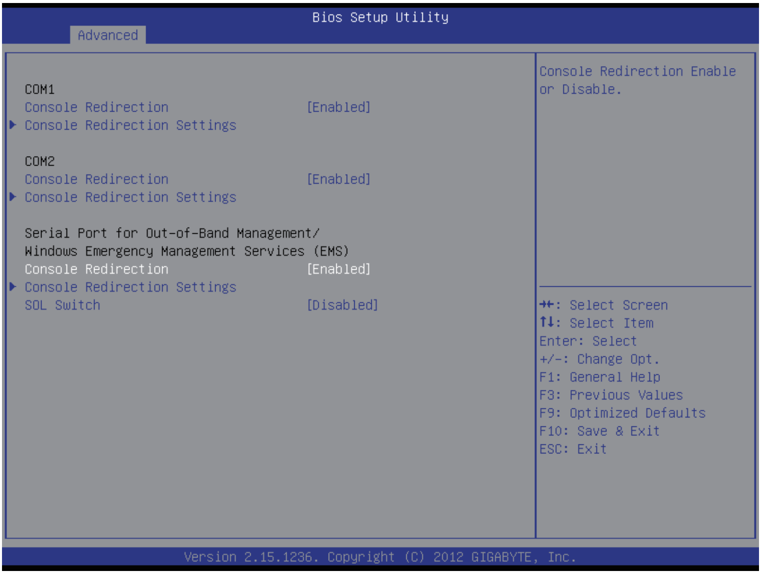
Display the Serial Port 0/1 base I/O addressand IRQ.

Change Settings

Change Serial Port 0/1 device settings. When set to Auto allows the server's BIOS or OS to select a configuration.

Options available: Auto/IO=3F8; IRQ=4/IO=3F8h; IRQ=3,4,5,6,7,10,11,12/
IO=2F8h; IRQ=3,4,5,6,7,10,11,12 /IO=3E8h; IRQ=3,4,5,6,7,10,11,12/IO=2E8h; IRQ=3,4,5,6,7,10,11,12.
Default setting is **Auto**.

2-2-9 Serial Port Console Redirection



```
                              Bios Setup Utility
       Advanced

  COM1                                                 Console Redirection Enable
  Console Redirection                [Enabled]         or Disable.
▶ Console Redirection Settings

  COM2
  Console Redirection                [Enabled]
▶ Console Redirection Settings

  Serial Port for Out-of-Band Management/
  Windows Emergency Management Services (EMS)
  Console Redirection                [Enabled]
▶ Console Redirection Settings
  SOL Switch                         [Disabled]        →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F3: Previous Values
                                                       F9: Optimized Defaults
                                                       F10: Save & Exit
                                                       ESC: Exit

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```

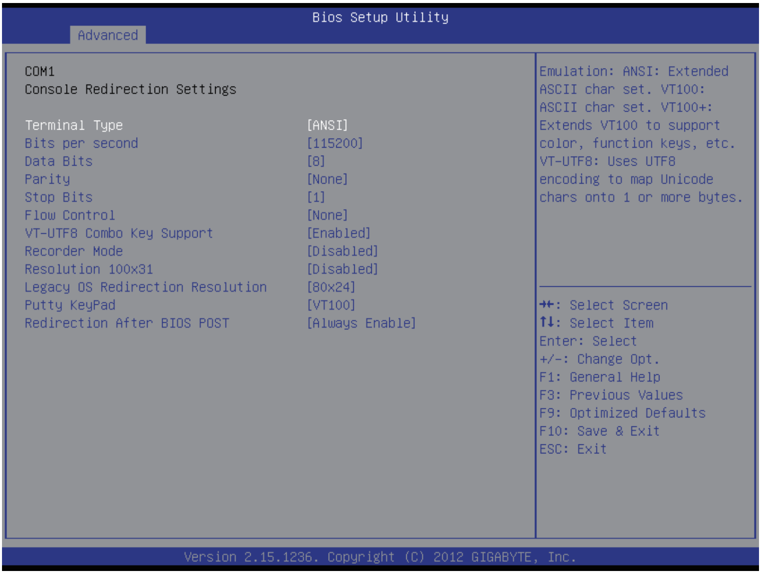

```
                              Bios Setup Utility
       Advanced

  COM1                                                 Emulation: ANSI: Extended
  Console Redirection Settings                         ASCII char set. VT100:
                                                       ASCII char set. VT100+:
  Terminal Type                      [ANSI]            Extends VT100 to support
  Bits per second                    [115200]          color, function keys, etc.
  Data Bits                          [8]               VT-UTF8: Uses UTF8
  Parity                             [None]            encoding to map Unicode
  Stop Bits                          [1]               chars onto 1 or more bytes.
  Flow Control                       [None]
  VT-UTF8 Combo Key Support          [Enabled]
  Recorder Mode                      [Disabled]
  Resolution 100x31                  [Disabled]
  Legacy OS Redirection Resolution   [80x24]
  Putty KeyPad                       [VT100]           →←: Select Screen
  Redirection After BIOS POST        [Always Enable]   ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F3: Previous Values
                                                       F9: Optimized Defaults
                                                       F10: Save & Exit
                                                       ESC: Exit

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```

☞ COM1/COM2/Serial Port for Out-of Band Management / Windows Emergency Management Service (EMS)

☞ Console Redirection (Note)

Select whether to enable console redirection for specified device. Console redirection enables users to manage the system from a remote location.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ Console Redirection Settings

☞ Terminal Type

Select a terminal type to be used for console redirection.

Options available: VT100/VT100+/ANSI /VT-UTF8.

☞ Bits per second

Select the baud rate for console redirection.

Options available: 9600/19200/57600/115200.

☞ Data Bits

Select the data bits for console redirection.

☞ Flow Control

Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.

Options available: None/Hardware RTS/CTS.

Options available: 7/8.

☞ Parity

A parity bit can be sent with the data bits to detect some transmission errors.

Even: parity bi is 0 if the num of 1's in the data bits is even.

Odd: parity bit is0if num of 1's the data bits is odd.

Mark: parity bit is always 1. Space: Parity bit is always 0.

Mark and Space Parity do not allow for error detection.

Options available: None/Even/Odd/Mark/Space.

☞ Stop Bits

Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.

Options available: 1/2.

☞ VT-UTF8 Combo Key Support (Note)

Enable/Disable VT-UTF8 Combo Key Support.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Recorder Mode (Note)

When this mode enabled, only text will be send. This is to capture Terminal data.

Options available: Enabled/Disabled.

☞ Resolution 100x31 (Note)

Enables or disables extended terminal resolution.

Options available: Enabled/Disabled.

(Note) Advanced items prompt when this item is defined.

☞ **Legacy OS Redirection Resolution** (Note)

On Legacy OS, the number of Rows and Columns supported redirection.
Options available: 80x24/80X25.

☞ **Putty KeyPad** (Note)

Select function FunctionKey and KeyPad on Putty.
Options available: VT100/LINUX/XTERMR6/SCO/ESCN/VT400.

☞ **Redirection After BIOS POST** (Note)

This option allows user to enable console redirection after O.S has loaded.
Options available: Always Enable/Boot Loader. Default setting is **Always Enable**.

☞ **Out-of-Bnad Mgmt Port**

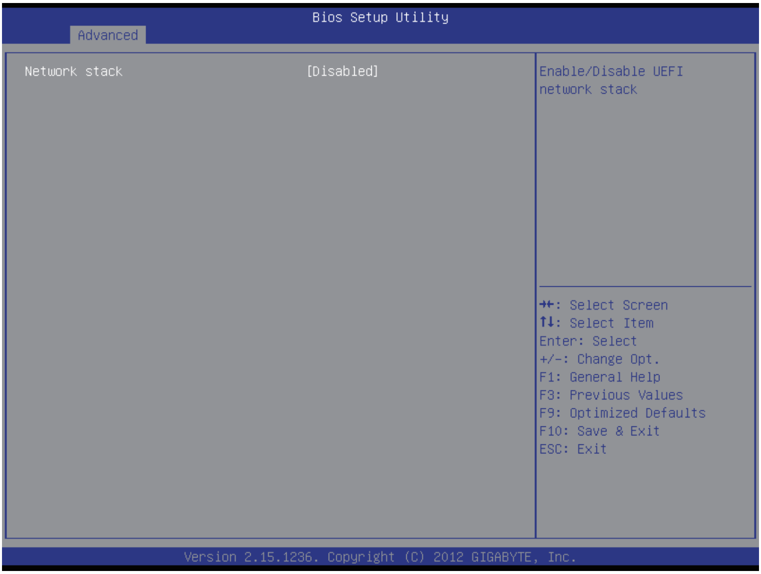
Microsoft Windows Emerency Management Service (EMS) allows for remote management of a Windows Server OS through a serial port.
Options available: COM1/COM2.

☞ **SOL Switch**

When enabled, COM1 Switch to AST2300 SOL UART.
When disabled, COM1 Switch to IT8728 SOL UART.
Options available: Enabled/Disabled. Default setting is **Disabled**.

(Note) Advanced items prompt when this item is defined.

2-2-10 Network Stack



Bios Setup Utility

Advanced

Network stack [Disabled]

Enable/Disable UEFI network stack

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit

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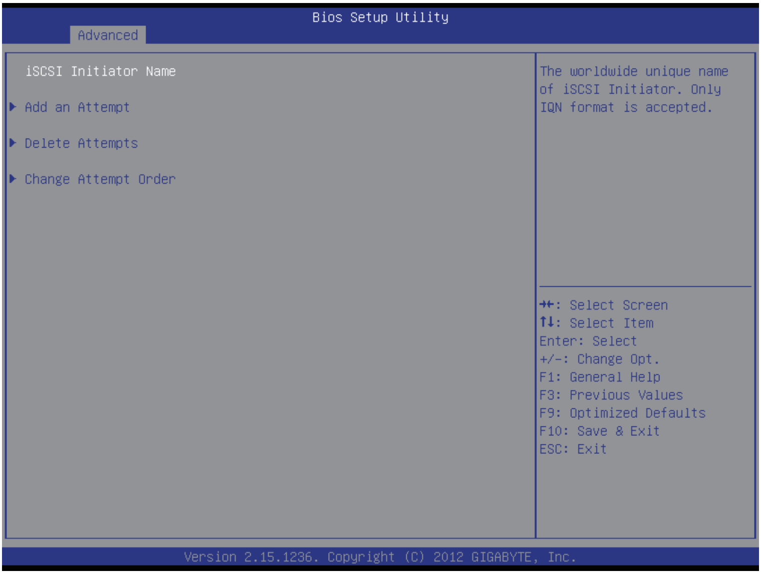
☞ **Network stack**

Enable/Disable UEFI network stack.

Options available: Enabled/DIsabled. Default setting is **Disabled**.

2-2-11 iSCSI Configuration



```
                              Bios Setup Utility
        Advanced

  iSCSI Initiator Name                               The worldwide unique name
                                                     of iSCSI Initiator. Only
▶ Add an Attempt                                     IQN format is accepted.

▶ Delete Attempts

▶ Change Attempt Order




                                                     →←: Select Screen
                                                     ↑↓: Select Item
                                                     Enter: Select
                                                     +/-: Change Opt.
                                                     F1: General Help
                                                     F3: Previous Values
                                                     F9: Optimized Defaults
                                                     F10: Save & Exit
                                                     ESC: Exit

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```

☞ iSCSI Initiator Name

☞ Add an Attempts

Press [Enter] for configuration of advanced items.

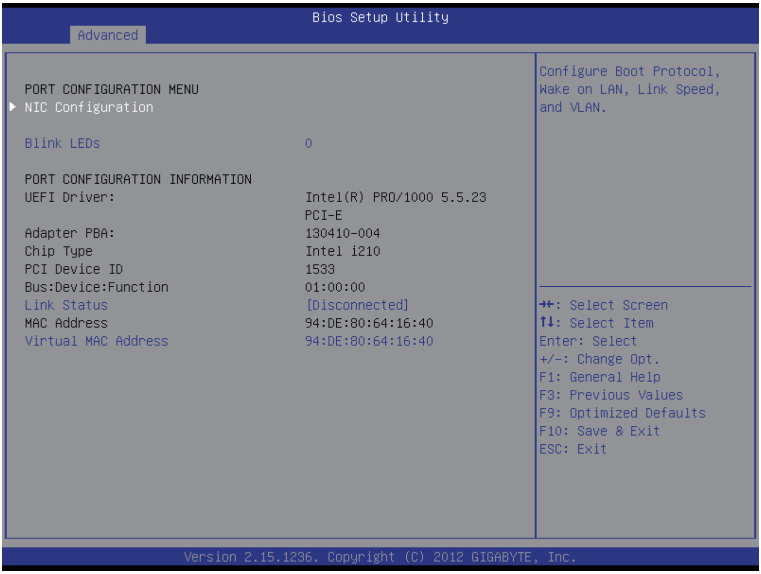
☞ Delete Attempts

Press [Enter] for configuration of advanced items.

☞ Change Attempt Order

Press [Enter] for configuration of advanced items.

2-2-12 Intel (R) I210 Gigabit Network Connection



```
                         Bios Setup Utility
       Advanced

   PORT CONFIGURATION MENU                                     Configure Boot Protocol,
 ▶ NIC Configuration                                           Wake on LAN, Link Speed,
                                                               and VLAN.
   Blink LEDs                     0

   PORT CONFIGURATION INFORMATION
   UEFI Driver:                   Intel(R) PRO/1000 5.5.23
                                  PCI-E
   Adapter PBA:                   130410-004
   Chip Type                      Intel i210
   PCI Device ID                  1533
   Bus:Device:Function            01:00:00
   Link Status                    [Disconnected]               →←: Select Screen
   MAC Address                    94:DE:80:64:16:40            ↑↓: Select Item
   Virtual MAC Address            94:DE:80:64:16:40            Enter: Select
                                                               +/-: Change Opt.
                                                               F1: General Help
                                                               F3: Previous Values
                                                               F9: Optimized Defaults
                                                               F10: Save & Exit
                                                               ESC: Exit

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```

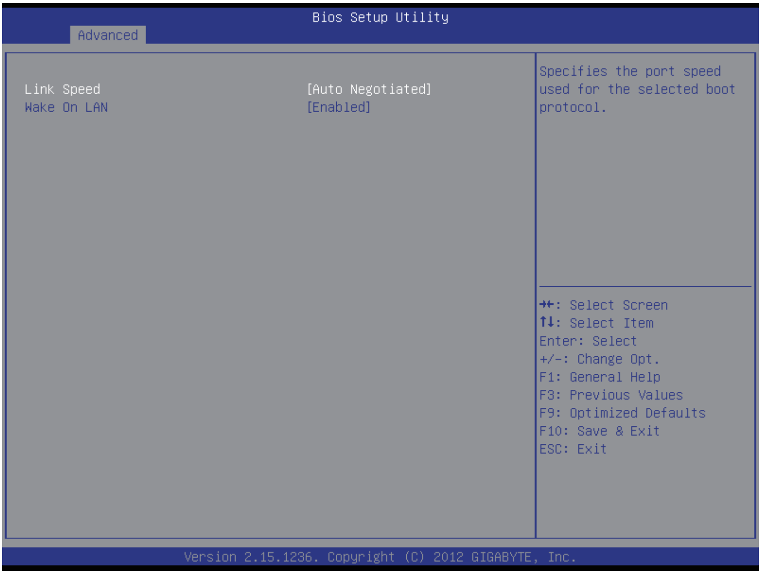

```
                         Bios Setup Utility
       Advanced

   Link Speed                     [Auto Negotiated]            Specifies the port speed
   Wake On LAN                    [Enabled]                    used for the selected boot
                                                               protocol.

                                                               →←: Select Screen
                                                               ↑↓: Select Item
                                                               Enter: Select
                                                               +/-: Change Opt.
                                                               F1: General Help
                                                               F3: Previous Values
                                                               F9: Optimized Defaults
                                                               F10: Save & Exit
                                                               ESC: Exit

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```

☞ **PORT CONFIGURATION MENU**

☞ **NIC Configuration**

☞ **Link Speed**

Change link speed duplex for current port.

Options available: AutoNeg/10Mbps Half/10Mbps Half/10Mbps Half/100Mbps Full.

Default setting is **AutoNeg**.

☞ **Wake On LAN**

Enable/Disable Wake On LAN feature.

Options available: Enabled/DIsabled. Default setting is **Enabled**.

☞ **Blink LEDs (range 0-15 seconds)**

Blink LEDs for the specified duration (up to 15 seconds).

Press the numberic keys to input the desired value.

☞ **Link Status**

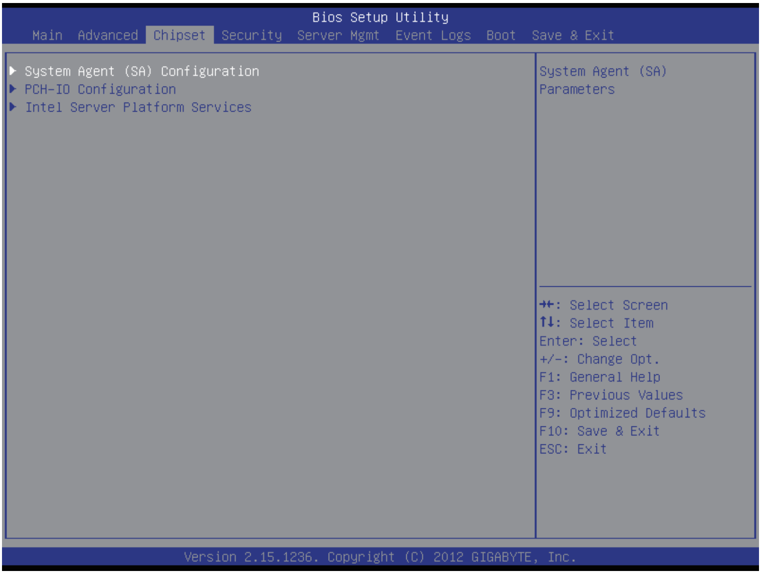
Display the link status.

☞ **Factory MAC Address/Alternate MAC Address**

Display the Factory and Alternate MAC address information.

2-3 Chipset Menu

The Chipset menu display submenu options for configuring the function of North Bridge and South Bridge. Select a submenu item, then press Enter to access the related submenu screen.



Bios Setup Utility
Main
Advanced
Chipset
Security
Server Mgmt
Event Logs
Boot
Save & Exit

▶ System Agent (SA) Configuration
▶ PCH-IO Configuration
▶ Intel Server Platform Services

System Agent (SA) Parameters

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
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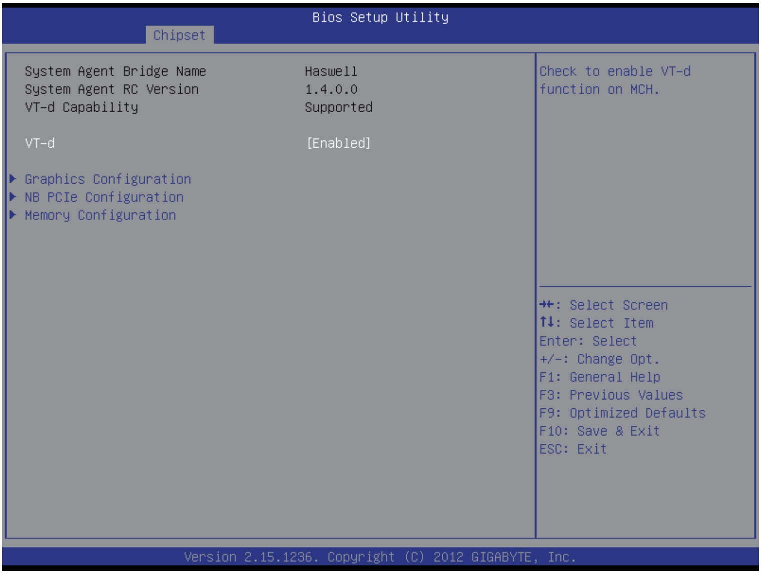
2-3-1 System Agent (SA)Configuration



```
                                   Bios Setup Utility
                   Chipset
 System Agent Bridge Name              Haswell               Check to enable VT-d
 System Agent RC Version               1.4.0.0               function on MCH.
 VT-d Capability                       Supported

 VT-d                                  [Enabled]

▶ Graphics Configuration
▶ NB PCIe Configuration
▶ Memory Configuration
                                                             →←: Select Screen
                                                             ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1: General Help
                                                             F3: Previous Values
                                                             F9: Optimized Defaults
                                                             F10: Save & Exit
                                                             ESC: Exit

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```

☞ System Agent Bridge Name

Display the System Agent (SA) Bridge Name.

☞ System Agent RC Version

Display the version number of System Agent RC.

☞ VT-d Capability

Display the VT-d support information.

☞ VT-d

Enable/Disable Intel Virtualization Technology for Directed I/O (VT-d) feature.
Options available: Enabled/DIsabled. Default setting is **Enabled**.

☞ Graphics Configuration

Press [Enter] for configuration of advanced items.

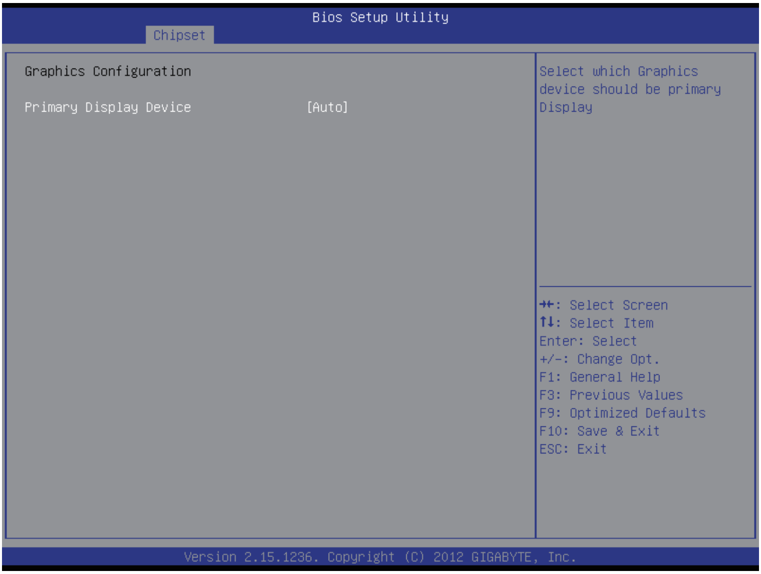
☞ NB PCIe Configuration

Press [Enter] for configuration of advanced items.

☞ Memory Configuration

Press [Enter] for configuration of advanced items.

2-3-1-1 Graphic Configuration



```
                              Bios Setup Utility
          Chipset
 Graphics Configuration                            Select which Graphics
                                                   device should be primary
 Primary Display Device           [Auto]           Display

                                                   →←: Select Screen
                                                   ↑↓: Select Item
                                                   Enter: Select
                                                   +/-: Change Opt.
                                                   F1: General Help
                                                   F3: Previous Values
                                                   F9: Optimized Defaults
                                                   F10: Save & Exit
                                                   ESC: Exit
               Version 2.15.1236. Copyright (C) 2012 GIGABYTE, Inc.
```

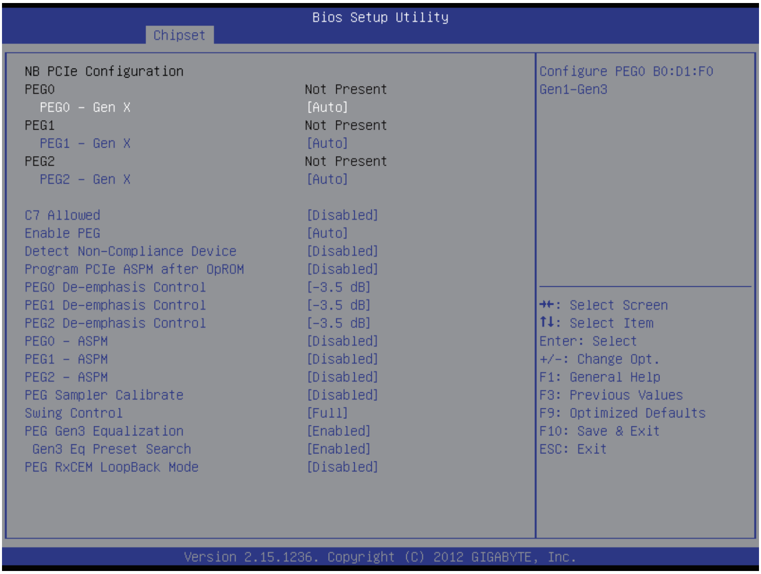
☞ **Graphic Configuration**

☞ **Primary Display Device**

Configure the Primary display device.

Options available: Auto//PCIE Slot 1/PCIE Slot 2/PCIE Slot 3/PCIE Slot 4/Onboard Vga. Default setting is **Auto**.

2-3-1-2 NB PCIe Configuration



```
                                   Bios Setup Utility
                 Chipset
 NB PCIe Configuration                                   | Configure PEG0 B0:D1:F0
 PEG0                                  Not Present       | Gen1-Gen3
   PEG0 - Gen X                        [Auto]            |
 PEG1                                  Not Present       |
   PEG1 - Gen X                        [Auto]            |
 PEG2                                  Not Present       |
   PEG2 - Gen X                        [Auto]            |
                                                         |
 C7 Allowed                            [Disabled]        |
 Enable PEG                            [Auto]            |
 Detect Non-Compliance Device          [Disabled]        |
 Program PCIe ASPM after OpROM         [Disabled]        |
 PEG0 De-emphasis Control              [-3.5 dB]         |-----------------------
 PEG1 De-emphasis Control              [-3.5 dB]         | →←: Select Screen
 PEG2 De-emphasis Control              [-3.5 dB]         | ↑↓: Select Item
 PEG0 - ASPM                           [Disabled]        | Enter: Select
 PEG1 - ASPM                           [Disabled]        | +/-: Change Opt.
 PEG2 - ASPM                           [Disabled]        | F1: General Help
 PEG Sampler Calibrate                 [Disabled]        | F3: Previous Values
 Swing Control                         [Full]            | F9: Optimized Defaults
 PEG Gen3 Equalization                 [Enabled]         | F10: Save & Exit
  Gen3 Eq Preset Search                [Enabled]         | ESC: Exit
 PEG RxCEM LoopBack Mode               [Disabled]        |

                 Version 2.15.1236. Copyright (C) 2012 GIGABYTE, Inc.
```

☞ NB PCIe Configuration

☞ PEG0

Display PEG0 configuration information.

☞ PEG0 - Gen X

Configure PEG0 B0:D1:F0 Gen1-Gen3.

Options available: Auto/Gen1/Gen2/Gen3. Default setting is **Auto**.

☞ PEG1

Display PEG1 configuration information.

☞ PEG1 - Gen X

Configure PEG1 B0:D1:F1 Gen1-Gen3.

Options available: Auto/Gen1/Gen2/Gen3. Default setting is **Auto**.

☞ PEG2

Display PEG2 configuration information.

☞ PEG2 - Gen X

Configure PEG2 B0:D1:F2 Gen1-Gen3.

Options available: Auto/Gen1/Gen2/Gen3. Default setting is **Auto**.

☞ Enable PEG

Enable/Disable PEG.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Detect Non-Compliance Device

Detect Non-Compliance PCI Express Device in PEG.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **PEG0 De-emphasis Control**

PEG0:Configure the De-emphasis control on PEG.

Options available: Options available: -6 dB/-3.5 dB. Default setting is **-3.5 dB**.

☞ **PEG1 De-emphasis Control**

PEG1:Configure the De-emphasis control on PEG.

Options available: Options available: -6 dB/-3.5 dB. Default setting is **-3.5 dB**.

☞ **PEG2 De-emphasis Control**

PEG2:Configure the De-emphasis control on PEG.

Options available: Options available: -6 dB/-3.5 dB. Default setting is **-3.5 dB**.

☞ **PEG0 - ASPM**

Control ASPM support for the PEG Device. This has no effect if PEG is not the currently active device.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **PEG1 - ASPM**

Control ASPM support for the PEG Device. This has no effect if PEG is not the currently active device.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **PEG2 - ASPM**

Control ASPM support for the PEG Device. This has no effect if PEG is not the currently active device.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **PEG Sampler Calibrate**

Enable or disable PEG Sampler Calibrate\nAuto means Disabled for SNB MB/DT, Enabled for IVB A0 B0.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **Swing Control**

Perform PEG Swing Control, on IVB C0 and Later.

Options available: Reduced/Half/Full. Default setting is **Full**.

☞ **PEG Gen3 Equalization**

Perform PEG Gen3 Equalization steps.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Gen3 Eq Phase 2**

Perform PEG Gen3 Equalization Phase 2.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Gen3 Eq Preset Search**

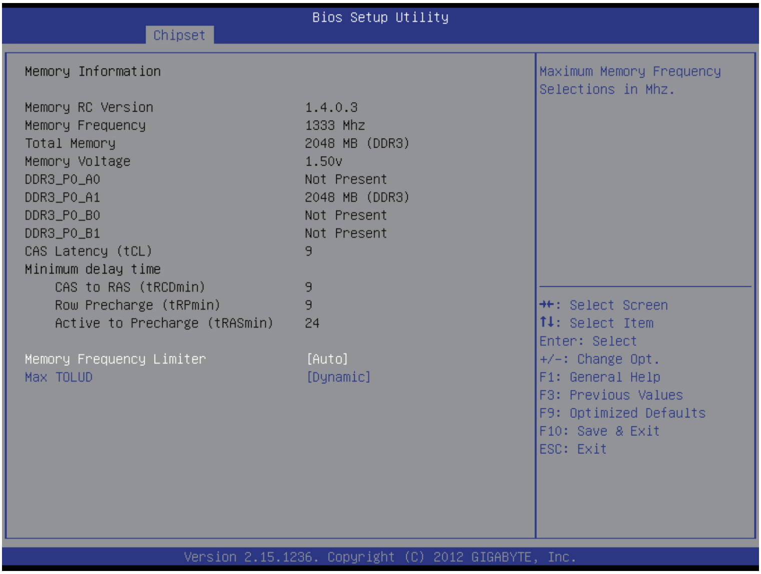
Perform PEG Gen3 Preset Search algorithm, on IVB C0 and Later.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **PEG RxCEM LoopBack Mode**

Options available: Enabled/Disabled. Default setting is **Disabled**.

2-3-1-3 Memory Configuration



```
                                  Bios Setup Utility
                 Chipset
 Memory Information                                        Maximum Memory Frequency
                                                           Selections in Mhz.
 Memory RC Version                  1.4.0.3
 Memory Frequency                   1333 Mhz
 Total Memory                       2048 MB (DDR3)
 Memory Voltage                     1.50v
 DDR3_P0_A0                         Not Present
 DDR3_P0_A1                         2048 MB (DDR3)
 DDR3_P0_B0                         Not Present
 DDR3_P0_B1                         Not Present
 CAS Latency (tCL)                  9
 Minimum delay time
     CAS to RAS (tRCDmin)           9
     Row Precharge (tRPmin)         9                      →←: Select Screen
     Active to Precharge (tRASmin)  24                     ↑↓: Select Item
                                                           Enter: Select
 Memory Frequency Limiter           [Auto]                 +/-: Change Opt.
 Max TOLUD                          [Dynamic]              F1: General Help
                                                           F3: Previous Values
                                                           F9: Optimized Defaults
                                                           F10: Save & Exit
                                                           ESC: Exit

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```

Memory Information

Memory RC Version

Display version number of installed memeory.

Memory Frequency

Display the frequency information of installed memory.

Total Memory

Determines how much total memory is present during the POST.

Memory Voltage

Display the voltage information of installed memory.

DIMM Information:

DDR3_P0_A0/DDR3_P0_A1/DDR3_P0_B0/DDR3_P0_B1 Status

The size of memory installed on each of the DDR3 slots.

CAS Latency (tCL)

Display the CAS Latency (tCL) information of installed memory.

Minimum delay time

CAS to RAS (tRCDmin)

Display the CAS to RAS (tRCDmin) information of installed memory.

Row Precharge (tRPimin)

Display the Row Precharge (tRPimin) information of installed memory.

Active to Precharge (tRCDmin)

Display the Active to Precharge (tRCDmin) information of installed memory.

☞ **Memory Frequency Limiter**

Maximum Memory Frequency Selections in Mhz.

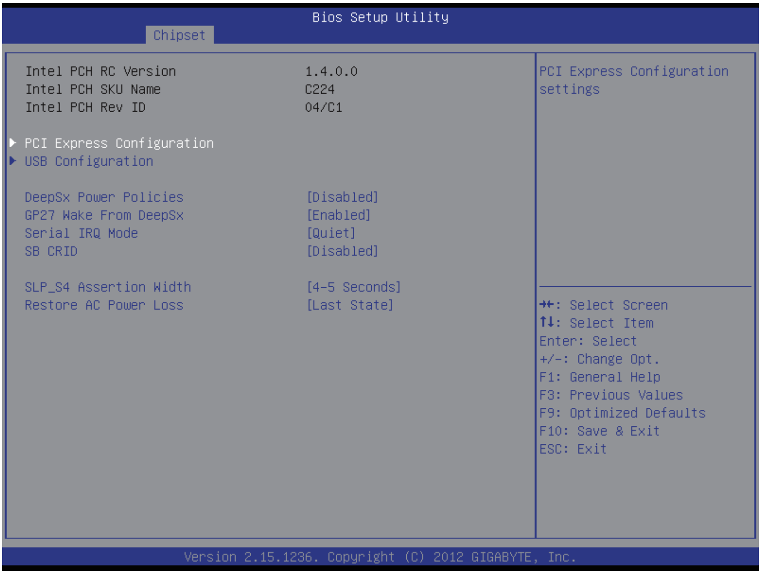
Options available: Auto/1067/1333/1600/1867/2133/2400/2667. Default setting is **Auto**.

☞ **Max TOLUD**

Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.

Options available: Dynamic/3.5 GB/3.25 GB/3 GB/2.75 GB/2.5 GB/2.25 GB/2 GB/1.75 GB/1.5 GB/1.25 GB/1 GB. Default setting is **Dynamic**.

2-3-2 PCH-IO Configuration



```
                                  Bios Setup Utility
                   Chipset
 Intel PCH RC Version                  1.4.0.0          PCI Express Configuration
 Intel PCH SKU Name                    C224             settings
 Intel PCH Rev ID                      04/C1

▶ PCI Express Configuration
▶ USB Configuration

 DeepSx Power Policies                 [Disabled]
 GP27 Wake From DeepSx                 [Enabled]
 Serial IRQ Mode                       [Quiet]
 SB CRID                               [Disabled]

 SLP_S4 Assertion Width                [4-5 Seconds]
 Restore AC Power Loss                 [Last State]     →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F3: Previous Values
                                                        F9: Optimized Defaults
                                                        F10: Save & Exit
                                                        ESC: Exit

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```

Intel PCH RC Version/Intel PCH SKU/Intel PCH Rev ID Information

Displays the RC version, SKU and Reverison ID information of PCH.

PCI Express Configuration

Press [Enter] for configuration of advanced items.

USB Configuration

Press [Enter] for configuration of advanced items.

DeepSx Power Policies

Configure the DeepSx Mode configuration.

Options available: Enabled/Disabled. Default setting is **Disabled**.

GP27 Wake From DeepSx

Wake from DeepSx by the assertion of GP27 pin.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Serial IRQ Mode

Configure Serial IRQ Mode.

Options available: Quiet/Continuous. Default setting is **Quiet**.

SB CRID

Enable/Disable SB CRID.

Options available: Enabled/Disabled. Default setting is **Enabled**.

SLP_S4 Assertion Width

Select a minimum assertion width of the SLP_S4# signal.

Options available: 1-2 Seconds/2-3 Seconds/3-4 Seconds/4-5 Seconds.

Default setting is **4-5 Seconds**.

☞ Restore AC Power Loss

This option provides user to set the mode of operation if an AC / power loss occurs.

Power On: System power state when AC cord is re-plugged.
Power Off: Do not power on system when AC power is back.
Last State: Set system to the last sate when AC power is removed.

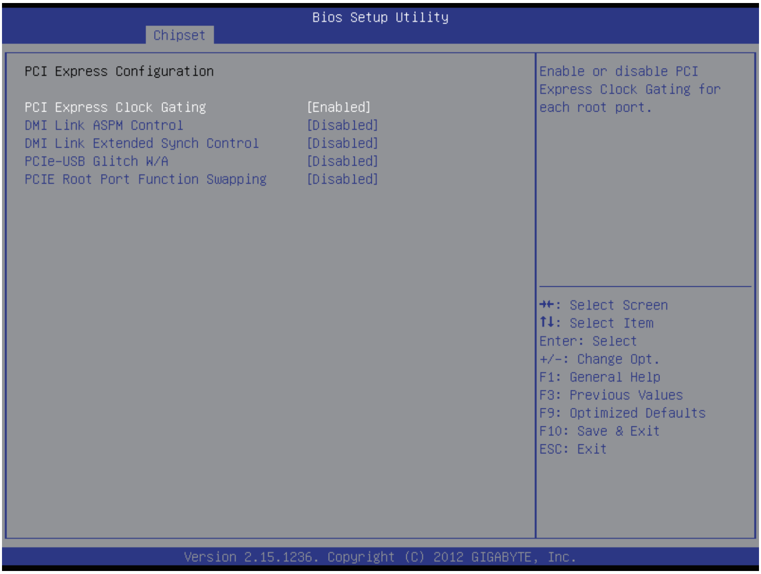
Options available: Power On/Power Off/Last State. Default setting is **Power Off**.

☞ NFC Device

Select NFC.

Options available: DisabledSKTD000/NXP5442/ICV0A12. Default setting is **Disabled**.

2-3-2-1 PCI Express Configuration



```
                              Bios Setup Utility
           Chipset

  PCI Express Configuration                               Enable or disable PCI
                                                          Express Clock Gating for
  PCI Express Clock Gating            [Enabled]           each root port.
  DMI Link ASPM Control               [Disabled]
  DMI Link Extended Synch Control     [Disabled]
  PCIe-USB Glitch W/A                 [Disabled]
  PCIE Root Port Function Swapping    [Disabled]




                                                          →←: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F3: Previous Values
                                                          F9: Optimized Defaults
                                                          F10: Save & Exit
                                                          ESC: Exit

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```

☞ PCI Express Clock Gating

Enable/Disable PCI Express Clock Gating for each root port.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ DMI Link ASPM Control

The control of Active State Power Management on both NB side and SB side of the DMI Link.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ DMI Link Extended Synch Control

The control of Extended Synch on SB side of the DMI Link.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ PCIe-USB Glitch W/A

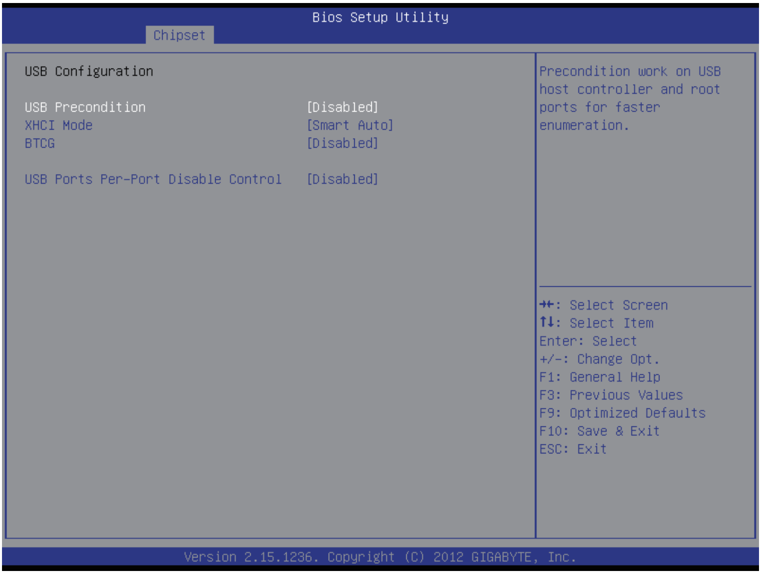
PCIe-USB Glitch W/A for bad USB device(s) connected behind PCIE/PEG Port.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ PCIe Root Port Function Swapping

Options available: Enabled/Disabled. Default setting is **Disabled**.

2-3-2-2 USB Configuration



```
                              Bios Setup Utility
      Chipset

 USB Configuration                                    Precondition work on USB
                                                      host controller and root
 USB Precondition                     [Disabled]      ports for faster
 XHCI Mode                            [Smart Auto]    enumeration.
 BTCG                                 [Disabled]

 USB Ports Per-Port Disable Control   [Disabled]

                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F3: Previous Values
                                                      F9: Optimized Defaults
                                                      F10: Save & Exit
                                                      ESC: Exit

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```

☞ USB Configuration

☞ USB Precondition

Precondition work on USB host controller and root ports for faster enumeration.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ XHCI Mode

Mode of operation of xHCI controller.

Options available: Smart Auto/Auto/Enabled/Disabled/Manual. Default setting is **Smart Auto**.

☞ BTCG

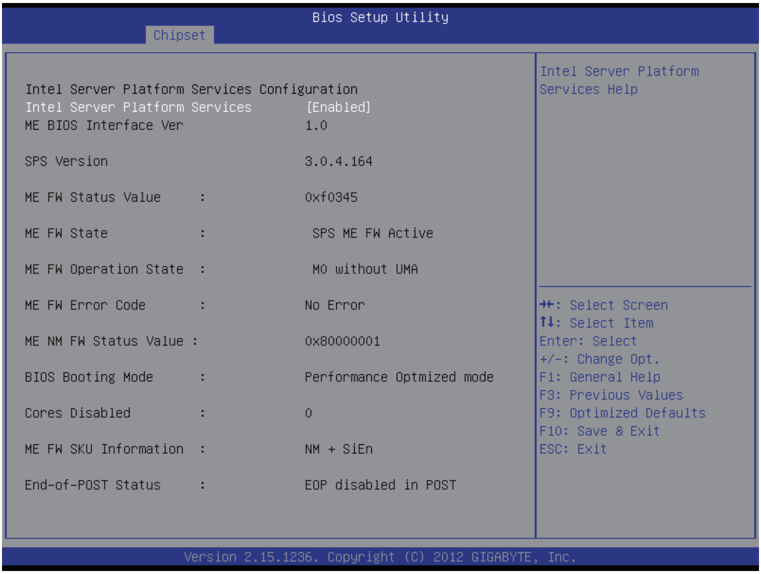
Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ USB Ports Per-Port Disable Control

Control each of the USB ports (0~13) disabling.

Options available: Enabled/Disabled. Default setting is **Disabled**.

2-3-3 Intel Server Platform Services


Bios Setup Utility
Chipset
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit

```
Intel Server Platform Services Configuration
Intel Server Platform Services        [Enabled]
ME BIOS Interface Ver                 1.0

SPS Version                           3.0.4.164

ME FW Status Value     :              0xf0345

ME FW State            :               SPS ME FW Active

ME FW Operation State  :               M0 without UMA

ME FW Error Code       :              No Error

ME NM FW Status Value :               0x80000001

BIOS Booting Mode      :              Performance Optmized mode

Cores Disabled         :              0

ME FW SKU Information  :              NM + SiEn

End-of-POST Status     :              EOP disabled in POST
```

Intel Server Platform Services Help

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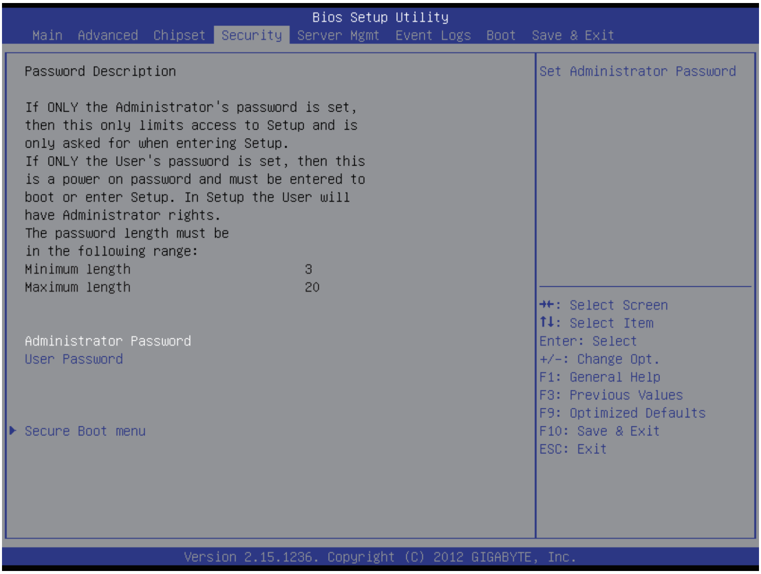
☞ **Intel Server Platform Services**

Enable/Disable Intel Server Platform Services Help.

Options available: Enabled/Disabled. Default setting is **Enabled**.

2-4 Security Menu

The Security menu allows you to safeguard and protect the system from unauthorized use by setting up access passwords.



```
Password Description                                  Set Administrator Password

If ONLY the Administrator's password is set,
then this only limits access to Setup and is
only asked for when entering Setup.
If ONLY the User's password is set, then this
is a power on password and must be entered to
boot or enter Setup. In Setup the User will
have Administrator rights.
The password length must be
in the following range:
Minimum length                       3
Maximum length                       20
                                                      →←: Select Screen
                                                      ↑↓: Select Item
Administrator Password                                Enter: Select
User Password                                         +/-: Change Opt.
                                                      F1: General Help
                                                      F3: Previous Values
                                                      F9: Optimized Defaults
▶ Secure Boot menu                                    F10: Save & Exit
                                                      ESC: Exit

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```

There are two types of passwords that you can set:

- Administrator Password

  Entering this password will allow the user to access and change all settings in the Setup Utility.
- User Password

  Entering this password will restrict a user's access to the Setup menus. To enable or disable this field, a Administrator Password must first be set. A user can only access and modify the System Time, System Date, and Set User Password fields.

☞ Administrator Password

Press Enter to configure the Administrator password.

☞ User Password

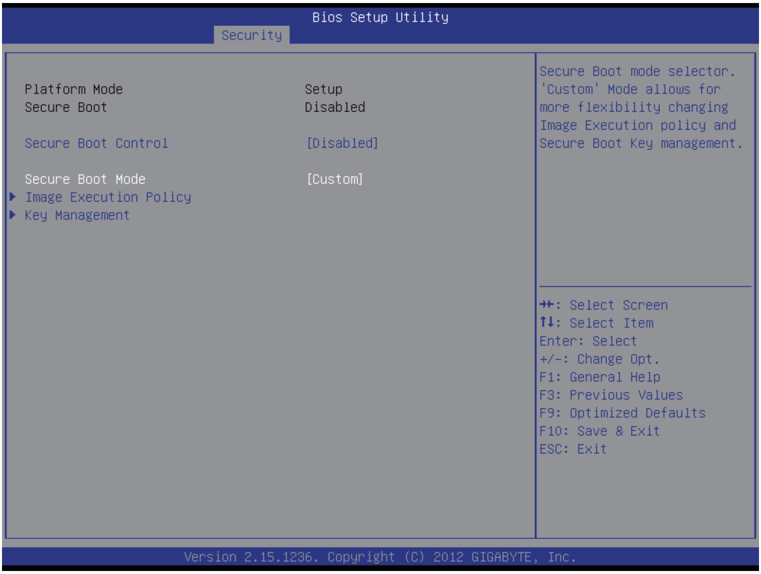
Press Enter to configure the user password.

☞ Secure Boot menu

Press [Enter] for configuration of advanced items.

2-4-1 Secure Boot menu

The Secure Boot Menu is applicable when your device is installed the Windows® 8 operatin system.



```
                         Bios Setup Utility
                    Security

  Platform Mode                       Setup                   Secure Boot mode selector.
  Secure Boot                         Disabled                'Custom' Mode allows for
                                                              more flexibility changing
  Secure Boot Control                 [Disabled]              Image Execution policy and
                                                              Secure Boot Key management.
  Secure Boot Mode                    [Custom]
▶ Image Execution Policy
▶ Key Management

                                                              →←: Select Screen
                                                              ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F3: Previous Values
                                                              F9: Optimized Defaults
                                                              F10: Save & Exit
                                                              ESC: Exit

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```

Platform Mode

Display the System Platform Mode State.

Secure Boot

Display the status of Secure Boot.

Secure Boot Control

Enable/Disable Secure Boot function.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Secure Boot Mode

Secure Boot requires all the applications that are running during the booting process to be pre-signed with valid digital certificates. This way, the system knows all the files being loaded before Windows 8 loads and gets to the login screen have not been tampered with.

When set to Standard, it will automatically load the Secure Boot keys form the BIOS databases.

When set to Custom, you can customize the Secure Boot settings and manually load its keys from the BIOS database.

Options available: Standard/Custom. Default setting is **Standard**.

Image Execution Policy(Note)

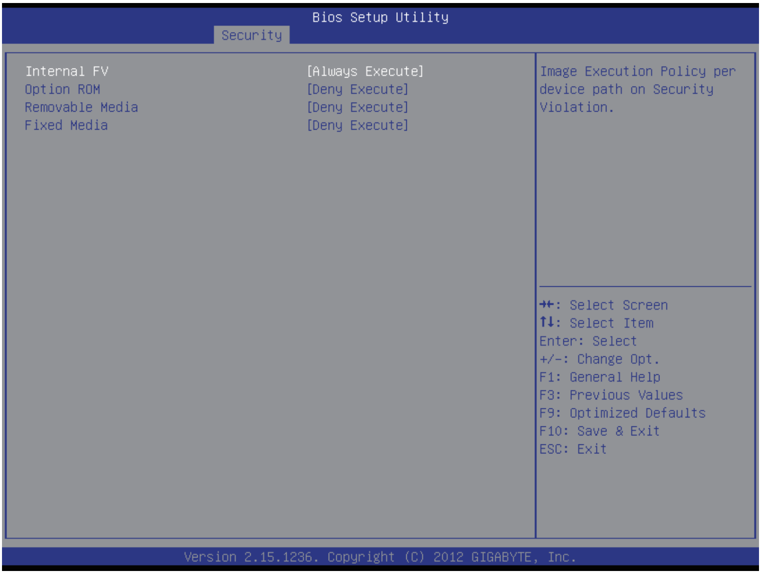
Press [Enter] for configuration of advanced items.

Key Management(Note)

Press [Enter] for configuration of advanced items.

(Note) Advanced items prompt when this item is set to **Cutom**.

2-4-1-1 Image Execution Policy



Bios Setup Utility
Security

```
Internal FV                          [Always Execute]
Option ROM                           [Deny Execute]
Removable Media                      [Deny Execute]
Fixed Media                          [Deny Execute]
```

Image Execution Policy per device path on Security Violation.

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
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☞ **Image Execution policy**

☞ **Internal FV**

Image Execution Policy per device path on Security Violation.

Options available: Always Execute. Default setting is **Always Execute**.

☞ **Option ROM**

Image Execution Policy per device path on Security Violation.

Options available: Always Execute/Always Deny/Allow Execute/Defer Execute/ Deny Execute/ Query User. Default setting is **Deny Execute**.

☞ **Removable Media**

Image Execution Policy per device path on Security Violation.

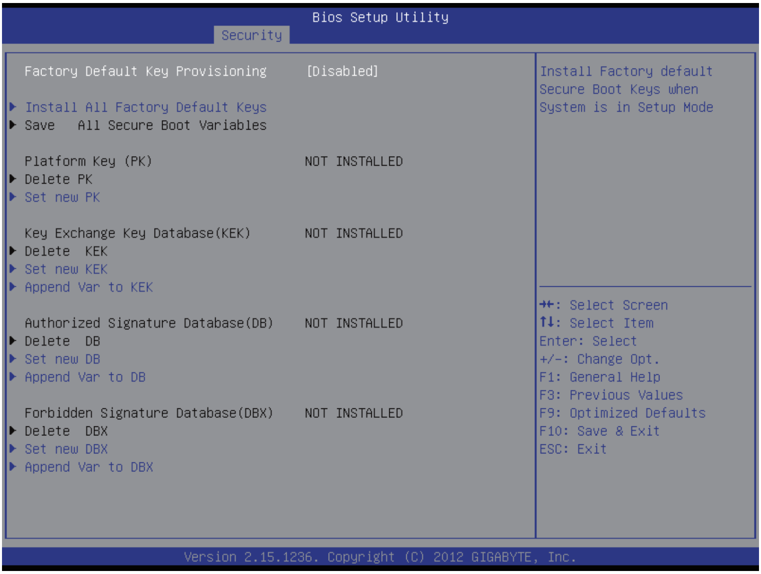
Options available: Always Execute/Always Deny/Allow Execute/Defer Execute/ Deny Execute/ Query User. Default setting is **Deny Execute**.

☞ **Fixed Media**

Image Execution Policy per device path on Security Violation.

Options available: Always Execute/Always Deny/Allow Execute/Defer Execute/ Deny Execute/ Query User. Default setting is **Deny Execute**.

2-4-1-2 Key Management



```
                              Bios Setup Utility
                      Security
 Factory Default Key Provisioning      [Disabled]        Install Factory default
                                                         Secure Boot Keys when
▶ Install All Factory Default Keys                       System is in Setup Mode
▶ Save  All Secure Boot Variables

 Platform Key (PK)                    NOT INSTALLED
▶ Delete PK
▶ Set new PK

 Key Exchange Key Database(KEK)       NOT INSTALLED
▶ Delete  KEK
▶ Set new KEK
▶ Append Var to KEK                                      →←: Select Screen
                                                         ↑↓: Select Item
 Authorized Signature Database(DB)    NOT INSTALLED      Enter: Select
▶ Delete  DB                                             +/-: Change Opt.
▶ Set new DB                                             F1: General Help
▶ Append Var to DB                                       F3: Previous Values
                                                         F9: Optimized Defaults
 Forbidden Signature Database(DBX)    NOT INSTALLED      F10: Save & Exit
▶ Delete  DBX                                            ESC: Exit
▶ Set new DBX
▶ Append Var to DBX

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```

☞ Key Management

This item appears only when the **Secure Boot Mode** is set to **Custom**.

☞ Factory Default Key Provisioning

Force the system to Setup Mode. This will clear all Secure Boot Variables such as Platform Key (PK), Key-exchange Key (KEK), Authorized Signature Database (db), and Forbidden Signaures Database (dbx).

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ Install All Factory Default Keys

Press [Enter] to install all factory default keys.

☞ Save All Secure Boot Variables

Press [Enter] to save all Secure Boot Variables.

☞ Platform Key (PK)

Display the status of Platform Key.

☞ Delete the PK

Press [Enter] to delete the existed PK. Once the PK is deleted, all the system's Secure Boot keys will not be activated.

☞ Set new PK File

Press [Enter] to configure a new PK.

☞ Key Exchange Key Database (KEK)

Display the status of Platform Key.

☞ Delete KEK

Press [Enter] to delete the KEK from your system.

☞ **Set new KEK**

Press [Enter] to configure a new KEK.

☞ **Append Var to KEK**

Press [Enter] to load additional KEK from a storage devices for an additional db and dbx management.

☞ **Authorized Signature Database (DB)**

Display the status of Authorized Signature Database.

☞ **Delete DB**

Press [Enter] to delete the db from your system.

☞ **Set new DB**

Press [Enter] to configure a new db.

☞ **Append aVar to DB**

Press [Enter] to load additional db from a storage devices.

☞ **Forbidden Signature Database (DBX)**

Display the status of Forbidden Signature Database.

☞ **Delete the DBX**

Press [Enter] to delete the dbx from your system.

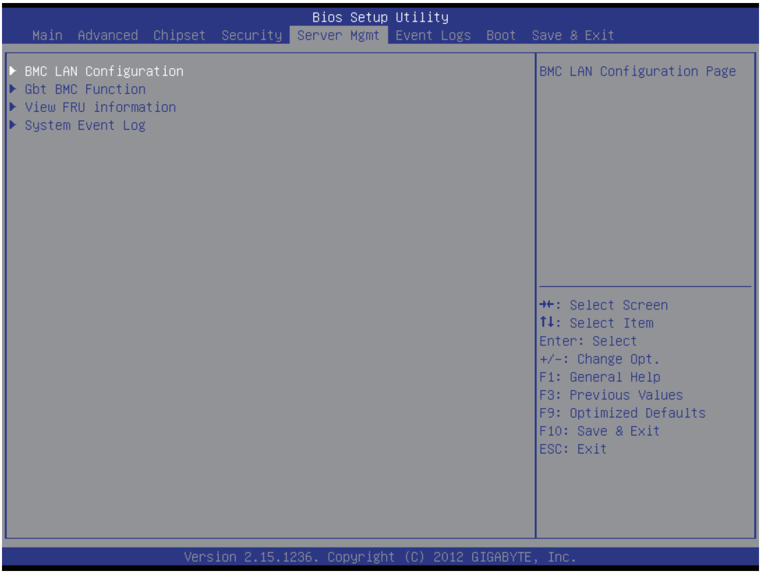
☞ **Set DBX from File**

Press [Enter] to configure a new dbx.

☞ **Append Var to DBX**

Press [Enter] to load additional db from a storage devices.

2-5 Server Management Menu



```
                                  Bios Setup Utility
   Main  Advanced  Chipset  Security  Server Mgmt  Event Logs  Boot  Save & Exit

 ▶ BMC LAN Configuration                                 BMC LAN Configuration Page
 ▶ Gbt BMC Function
 ▶ View FRU information
 ▶ System Event Log



                                                         →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F3: Previous Values
                                                         F9: Optimized Defaults
                                                         F10: Save & Exit
                                                         ESC: Exit

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```

☞ BMC LAN Configuration

BMC LAN Configuration. Press Enter to access the related submenu.

☞ Gbt BMC Function

BMC related function configuration.Press Enter to access the related submenu.

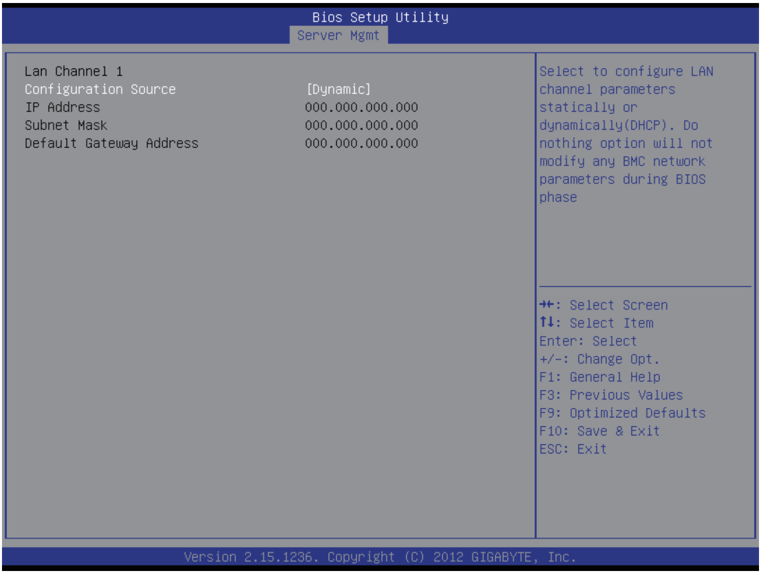
☞ View FRU information

The FRU information submenu is a simple display page for basic system ID information, as well as system product information. Items on this window are non-configurable.

☞ System Event Log

Displays Event Log advanced settings. Press Enter to access the related submenu.

2-5-1 BMC LAN Configuration



```
                          Bios Setup Utility
                             Server Mgmt

 Lan Channel 1                                    Select to configure LAN
 Configuration Source              [Dynamic]      channel parameters
 IP Address                        000.000.000.000  statically or
 Subnet Mask                       000.000.000.000  dynamically(DHCP). Do
 Default Gateway Address           000.000.000.000  nothing option will not
                                                  modify any BMC network
                                                  parameters during BIOS
                                                  phase

                                                  →←: Select Screen
                                                  ↑↓: Select Item
                                                  Enter: Select
                                                  +/-: Change Opt.
                                                  F1: General Help
                                                  F3: Previous Values
                                                  F9: Optimized Defaults
                                                  F10: Save & Exit
                                                  ESC: Exit

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```

- **Lan Channel 1**
- **Configuration Source**

  Select to configure LAN channel parameters statically or dynamically (DHCP). Do nothing option will not modify any BMC network parameters during BIOS phase.

  Options available: Static/Dynamic/Do Nothing.
- **IP Address**

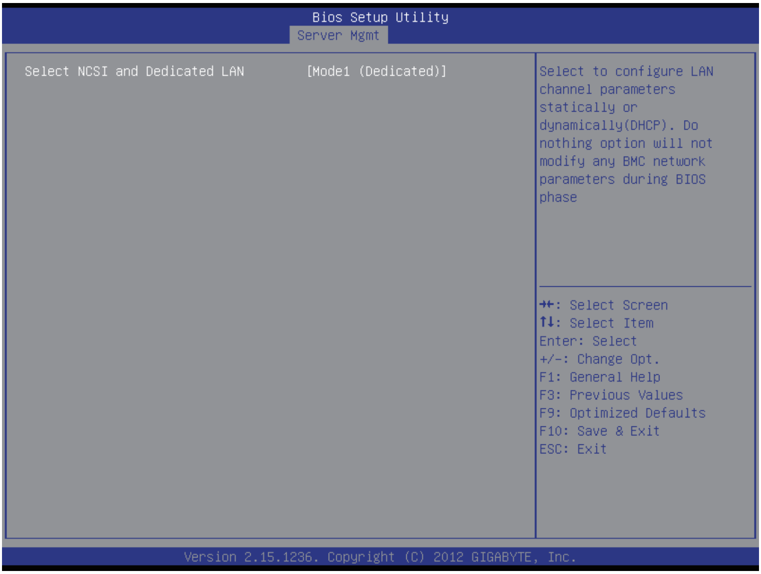
  Display IP Address information.
- **Subnet Mask**

  Display Subnet Mask information.

  Please note that the IP address must be in three digitals, for example, 192.168.000.001.
- **Default Gateway Address**

  Display Default Gateway Address information.

2-5-2 Gbt BMC Function


Bios Setup Utility
Server Mgmt

Select NCSI and Dedicated LAN [Mode1 (Dedicated)]

Select to configure LAN channel parameters statically or dynamically(DHCP). Do nothing option will not modify any BMC network parameters during BIOS phase

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
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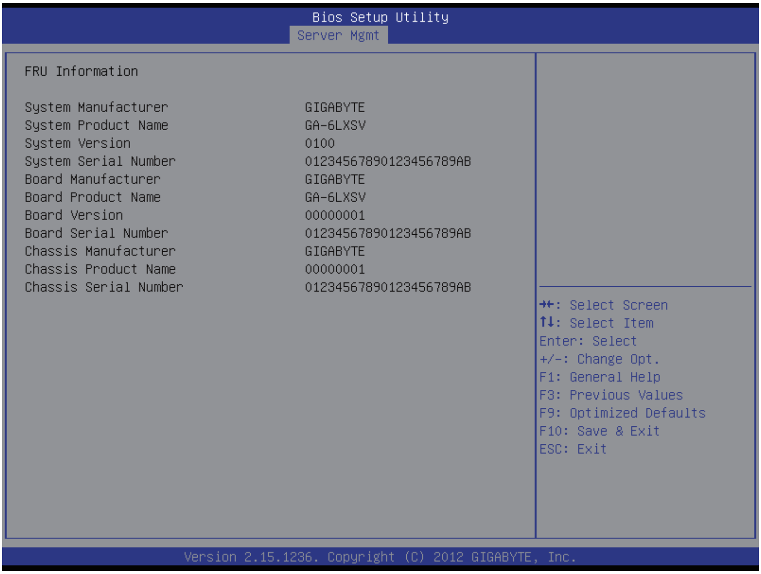
☞ **Select NCSI and Dedicated LAN**

Switch NCSI and dedicated LAN and send KCS command.

Options available: Mode2(NSCI)/ Mode1 (Dedicated). Default setting is **Mode1 (Dedicated)**.

2-5-3 View FRU Information

The FRU Information menu is a simple display page for basic system ID information, as well as System product information. Items on this window are non-configurable.


Bios Setup Utility
Server Mgmt

```
FRU Information

System Manufacturer          GIGABYTE
System Product Name          GA-6LXSV
System Version               0100
System Serial Number         0123456789O123456789AB
Board Manufacturer           GIGABYTE
Board Product Name           GA-6LXSV
Board Version                00000001
Board Serial Number          0123456789O123456789AB
Chassis Manufacturer         GIGABYTE
Chassis Product Name         00000001
Chassis Serial Number        0123456789O123456789AB
```

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
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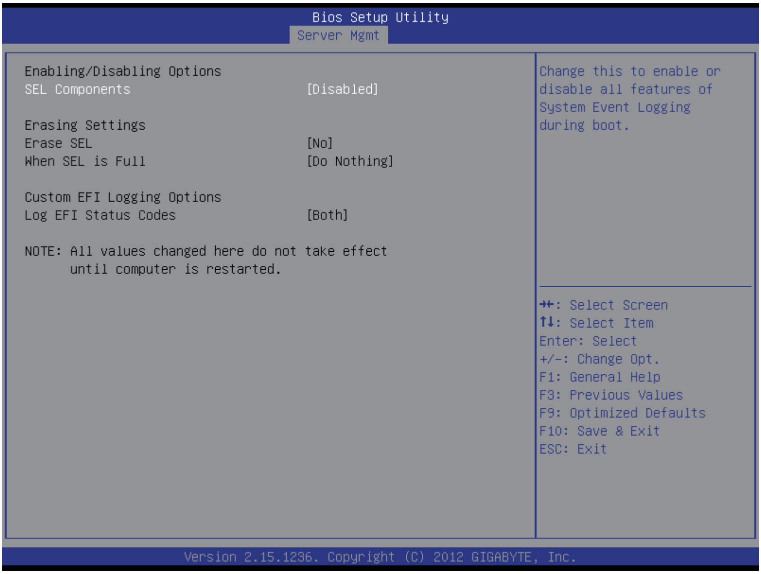
2-5-4 System Event Log



```
                              Bios Setup Utility
                                 Server Mgmt

 Enabling/Disabling Options                               Change this to enable or
 SEL Components                   [Disabled]              disable all features of
                                                          System Event Logging
 Erasing Settings                                         during boot.
 Erase SEL                        [No]
 When SEL is Full                 [Do Nothing]

 Custom EFI Logging Options
 Log EFI Status Codes             [Both]

 NOTE: All values changed here do not take effect
       until computer is restarted.
                                                          →←: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F3: Previous Values
                                                          F9: Optimized Defaults
                                                          F10: Save & Exit
                                                          ESC: Exit

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```

Enabling/Disabling Options

Smbios Event Log

Choose options to Enable/Disable logging of System boot event.

Options available: Enabled/Disabled. Default setting is **Disabled**.

Erasing Settings

Erasing Event Log

Choose options for erasing Smbios Event Log Erasing is done prior to any logging activation during reset.

Options available: No/Yes, On next reset/Yes, On every reset. Default setting is **No**.

When Log is Full

Choose options for reactions to a full Smbios Event Log.

Options available: Do Nothing/Erase Immediately. Default setting is **Do Nothing**.

Smbios Event Log Standard Settings

Log System Boot Event

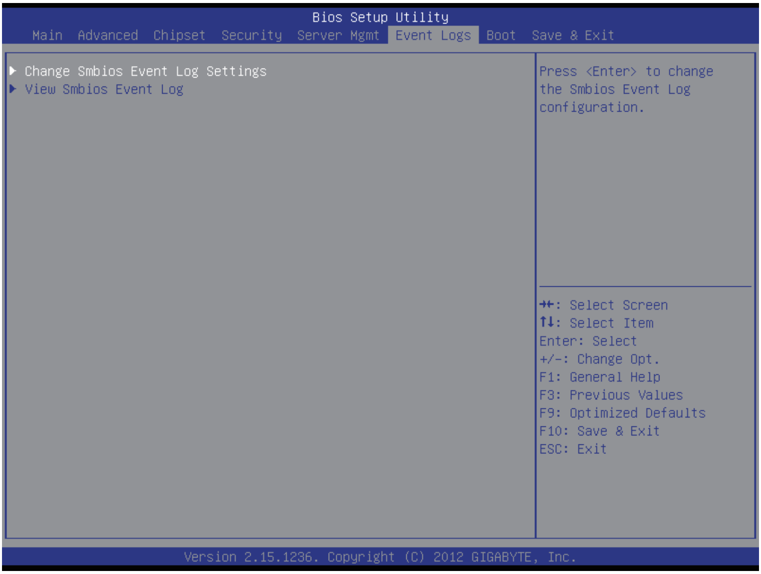
Choose options to Enable/Dsiable logging of System boot event.

Options available: Enabled/Disabled. Default setting is **Enabled**.

MECI

Multiple Event Count Increment: The number of occurrences of a duplicate event that must paass before the multi-event counter associated with the log entry is updated, specified as numberic value in the range 1 to 33. Press <+> / <-> keys to increase or decrease the desired values.

2-6 Event Logs Menu



```
                              Bios Setup Utility
  Main  Advanced  Chipset  Security  Server Mgmt  Event Logs  Boot  Save & Exit

▶ Change Smbios Event Log Settings                  Press <Enter> to change
▶ View Smbios Event Log                             the Smbios Event Log
                                                    configuration.

                                                    →←: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F3: Previous Values
                                                    F9: Optimized Defaults
                                                    F10: Save & Exit
                                                    ESC: Exit

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```

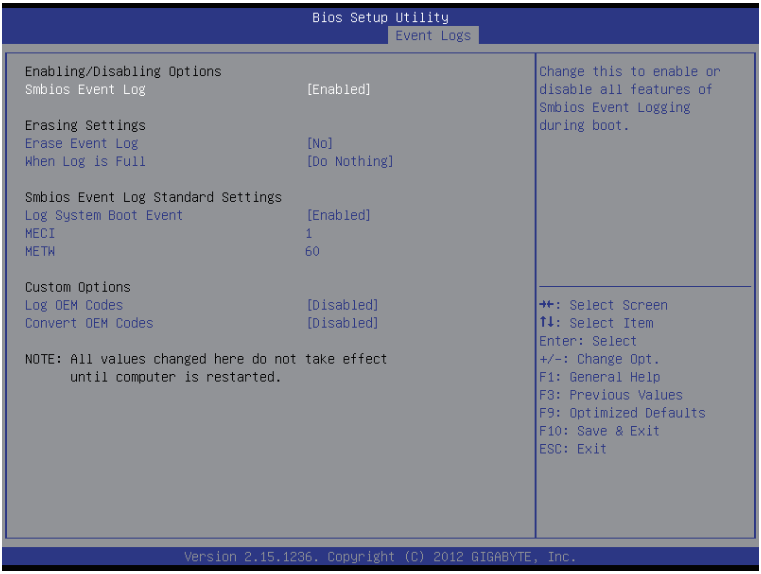
☞ **Change Smbios Event Log Settings**

Press [Enter] for configuration of advanced items.

☞ **View Smbios Event Log**

Press [Enter] to view event logs.

2-6-1 Change Smbios Event Log Settings



```
                         Bios Setup Utility
                                 Event Logs

Enabling/Disabling Options
Smbios Event Log                      [Enabled]

Erasing Settings
Erase Event Log                       [No]
When Log is Full                      [Do Nothing]

Smbios Event Log Standard Settings
Log System Boot Event                 [Enabled]
MECI                                  1
METW                                  60

Custom Options
Log OEM Codes                         [Disabled]
Convert OEM Codes                     [Disabled]

NOTE: All values changed here do not take effect
      until computer is restarted.
```

```
Change this to enable or
disable all features of
Smbios Event Logging
during boot.

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
```

```
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```

Enabling/Disabling Options

SEL Components

Change this to enable or disable all features of System Event Logging during boot.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Erasing Settings

Erasing SEL

Choose options for erasing Smbios Event Log Erasing is done prior to any logging activation during reset.

Options available: No/Yes, On next reset/Yes, On every reset. Default setting is **No**.

When SEL is Full

Choose options for reactions to a full Smbios Event Log.

Options available: Do Nothing/Erase Immediately. Default setting is **Do Nothing**.

Smbios Event Log Standard Settings

Log System Boot Event

Log System Boot Event Choose options to Enable/Dsiable logging of System boot event.

Options available: Enabled/Disabled. Default setting is **Enabled**.

MECI

Multiple Event Count Increment: The number of occurrences of a duplicate event that must paass before the multi-event counter associated with the log entry is updated, specifie as numberic value in the range 1 to 33. Press <+> / <-> keys to increase or decrease the desired values.

☞ **METW**

Multiple Event Time Window: The number of minutes which must pass between duplicate log entries which utilize a multiple-event counter. The value ranges from 0 to 99 minutes. Press <+> / <-> keys to increase or decrease the desired values.

☞ **Custom Options**

☞ **Log OEM Codes**

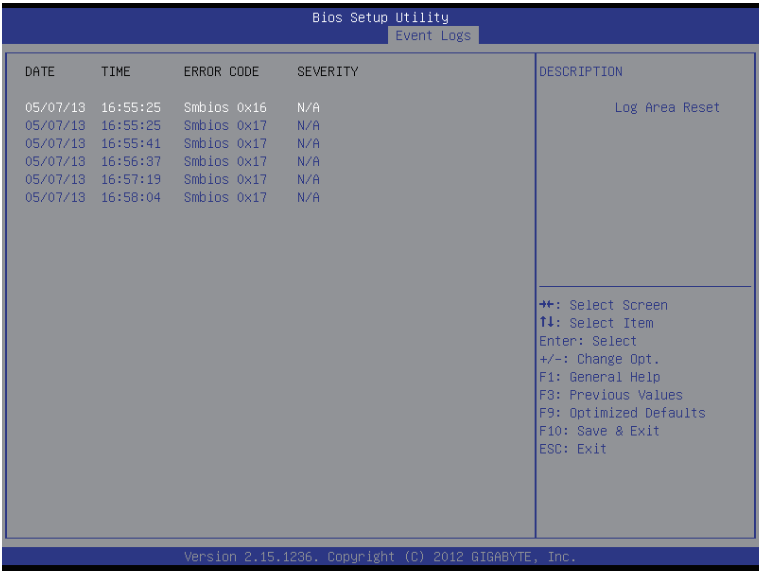
Enable/Disable the logging of EFI Status Codes as OEM Codes.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Convert OEM Codes**

Enable/Disable the converting of EFI Status Codes to Standard Smbios Type.
Options available: Enabled/Disabled. Default setting is **Enabled**.

2-6-2 View Smbios Event Log

The Smbios Event Log is a display page of Smbios Event Log information. Items on this window are non-configurable. Press Enter to View Smbios Event Log



Bios Setup Utility
Event Logs

```
DATE      TIME      ERROR CODE   SEVERITY

05/07/13  16:55:25  Smbios 0x16  N/A
05/07/13  16:55:25  Smbios 0x17  N/A
05/07/13  16:55:41  Smbios 0x17  N/A
05/07/13  16:56:37  Smbios 0x17  N/A
05/07/13  16:57:19  Smbios 0x17  N/A
05/07/13  16:58:04  Smbios 0x17  N/A
```

DESCRIPTION

Log Area Reset

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
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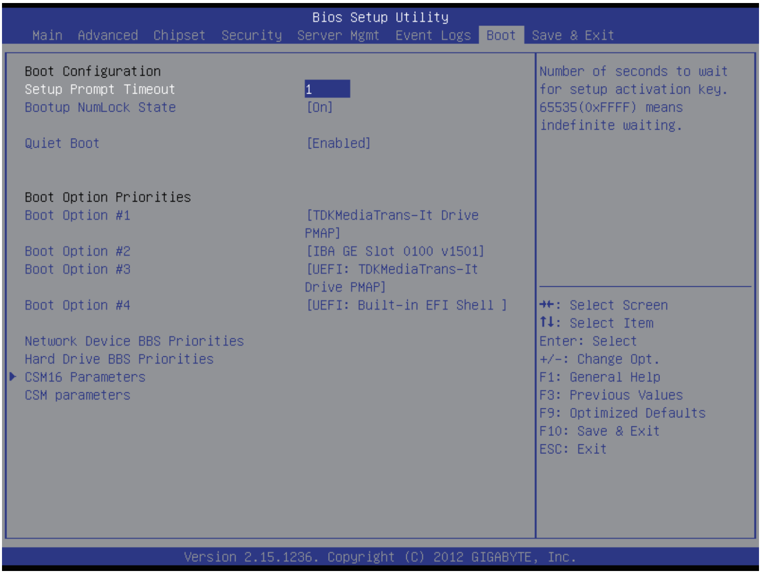
2-7 Boot Menu

The Boot menu allows you to set the drive priority during system boot-up. BIOS setup will display an error message if the legacy drive(s) specified is not bootable.



```
                                Bios Setup Utility
  Main  Advanced  Chipset  Security  Server Mgmt  Event Logs  Boot  Save & Exit

  Boot Configuration                                       Number of seconds to wait
  Setup Prompt Timeout           1                         for setup activation key.
  Bootup NumLock State           [On]                      65535(0xFFFF) means
                                                           indefinite waiting.
  Quiet Boot                     [Enabled]


  Boot Option Priorities
  Boot Option #1                 [TDKMediaTrans-It Drive
                                 PMAP]
  Boot Option #2                 [IBA GE Slot 0100 v1501]
  Boot Option #3                 [UEFI: TDKMediaTrans-It
                                 Drive PMAP]
  Boot Option #4                 [UEFI: Built-in EFI Shell ]  →←: Select Screen
                                                              ↑↓: Select Item
  Network Device BBS Priorities                               Enter: Select
  Hard Drive BBS Priorities                                   +/-: Change Opt.
► CSM16 Parameters                                            F1: General Help
  CSM parameters                                              F3: Previous Values
                                                              F9: Optimized Defaults
                                                              F10: Save & Exit
                                                              ESC: Exit

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```

Boot Configuration

Setup Prompt Timeout

Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting."

Press the numberic keys to input the desired value.

Bootup NumLock State

Enable or Disable Bootup NumLock function.

Options available: On/Off. Default setting is **On**.

Quiet Boot

Enables or disables showing the logo during POST.

Options available: Enabled/Disabled. Default setting is **Enabled**.

Boot Priority Order

Boot Option #1/#2/#3/#4

Press Enter to configure the boot priority.

By default, the server searches for boot devices in the following secquence:

1. UEFI device.
2. Hard drive.
3. Network device.
4. Removable device.

☞ **Network Device BBS Priorities**

Press Enter to configure the boot priority.

☞ **Hard Drive BBS Priorities**

Press Enter to configure the boot priority.

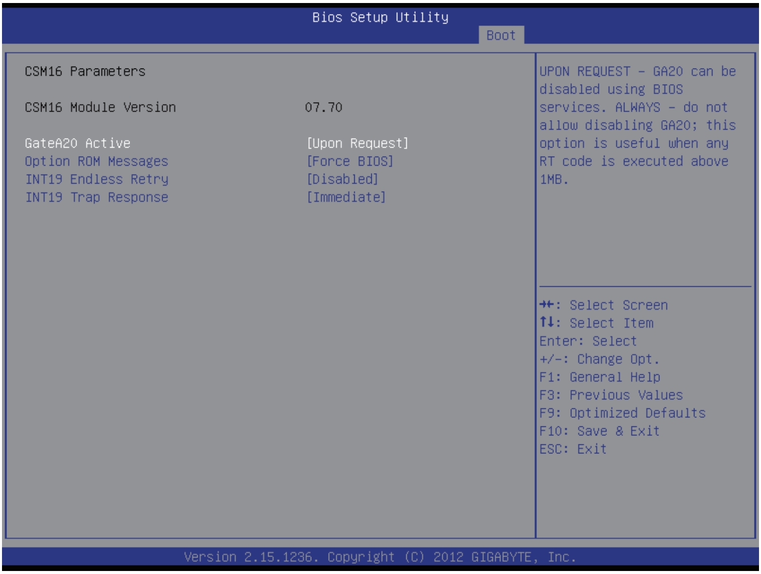
☞ **CSM16 Parameters**

Press [Enter] for configuration of advanced items.

☞ **CSM parameters**

Press [Enter] for configuration of advanced items.

2-7-1 CSM16 Parameters



```
                              Bios Setup Utility
                                                    Boot
 CSM16 Parameters                                  | UPON REQUEST - GA20 can be
                                                   | disabled using BIOS
 CSM16 Module Version              07.70           | services. ALWAYS - do not
                                                   | allow disabling GA20; this
 GateA20 Active                    [Upon Request]  | option is useful when any
 Option ROM Messages               [Force BIOS]    | RT code is executed above
 INT19 Endless Retry               [Disabled]      | 1MB.
 INT19 Trap Response               [Immediate]     |
                                                   |
                                                   | →←: Select Screen
                                                   | ↑↓: Select Item
                                                   | Enter: Select
                                                   | +/-: Change Opt.
                                                   | F1: General Help
                                                   | F3: Previous Values
                                                   | F9: Optimized Defaults
                                                   | F10: Save & Exit
                                                   | ESC: Exit

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```

☞ CSM16 Module Version

Display CSM Module version information.

☞ Gate20 Active

Upon Request: GA20 can be disabled using BIOS services.

Always: Do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.

Options available: Upon Request/Always. Default setting is **Upon Request**.

☞ Option ROM Messages

Option ROM Messages.

Options available: Force BIOS/Keep Current. Default setting is **Force BIOS**.

☞ INT19 Endless Retry

Enabled: Allowed headless retry boot

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ INT19 Trap Response

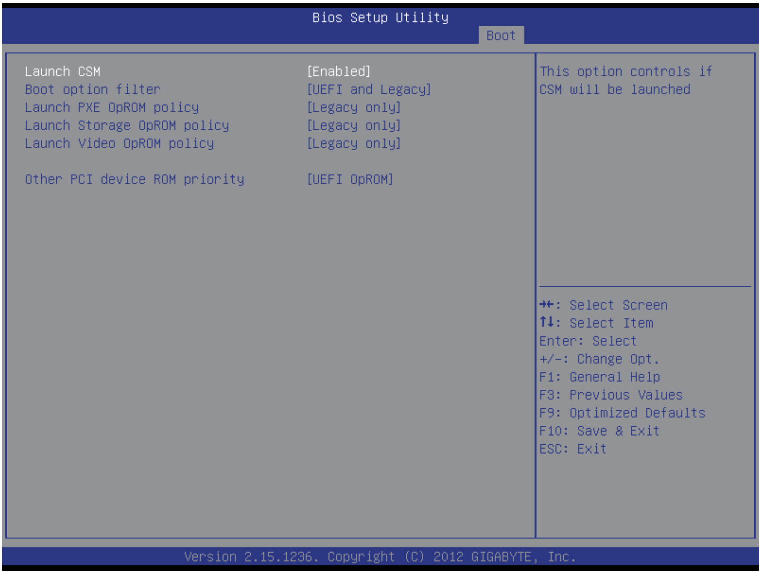
BIOS reaction on INT19 trapping by Option ROM

Immediate: execute the trap right away.

Postpone: execute the trap during legacy boot.

Options available: Immediate/Postpone. Default setting is **Immediate**.

2-7-2 CSM Parameters



```
                              Bios Setup Utility
                                                 Boot
 Launch CSM                          [Enabled]            This option controls if
 Boot option filter                  [UEFI and Legacy]    CSM will be launched
 Launch PXE OpROM policy             [Legacy only]
 Launch Storage OpROM policy         [Legacy only]
 Launch Video OpROM policy           [Legacy only]

 Other PCI device ROM priority       [UEFI OpROM]




                                                          →←: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F3: Previous Values
                                                          F9: Optimized Defaults
                                                          F10: Save & Exit
                                                          ESC: Exit

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```

☞ CSM parameters

Press Enter to configure the advanced items.

☞ Launch CSM (Compatibility Support Module)

Enable/Disable Compatibility Support Module (CSM) launch.

Options available: Enabled/Disabled. Default setting is **Enabled**.

- The following five items appears and configurable when the **Launch CSM** is set to **Enabled**.
- If the **Launch CSM** is set to **Disabled,** the following five items will not be able to support Legacy mode.

☞ Boot option filter

Determines which devices system will boot to.

Options available: UEFI and Legacy/Legacy only/UEFI only. Default setting is **UEFI and Legacy**.

☞ Launch PXE OpROM policy

Determines which devices system will boot to.

Options available: Do not launch/UEFI only/Legacy only/Legacy first/UEFI first. Default setting is **Do not launch**.

☞ Launch Storage OpROM policy

Determines which devices system will boot to.

Options available: Do not launch/UEFI only/Legacy only/Legacy first/UEFI first. Default setting is **Legacy only.**

☞ Launch Video OpROM policy

Determines which devices system will boot to.

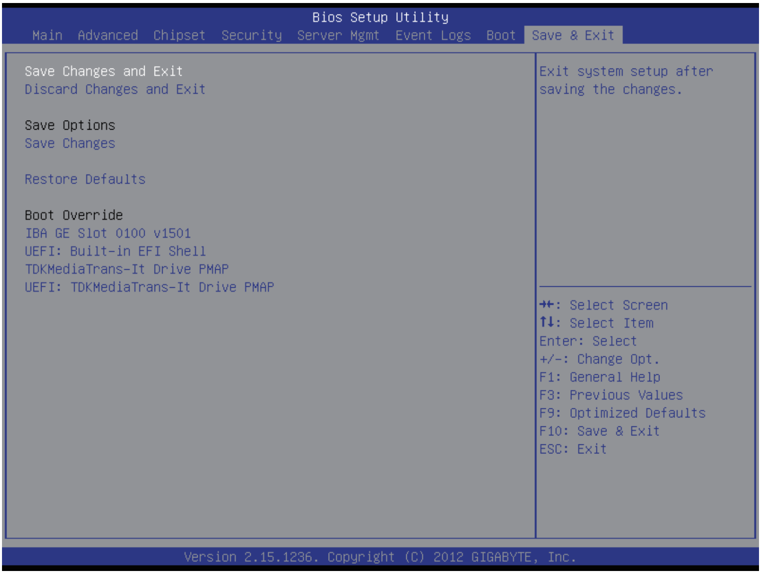
Options available: Do not launch/UEFI only/Legacy only/Legacy first/UEFI first. Default setting is **Legacy only.**

☞ **Other PCI device ROM priority**

For PCI devices other than Network, Mass storage or Video device, defines which OpROM to launch. Options available: UEFI OpROM/Legacy OpROM. Default setting is **UEFI OpROM.**

2-8 Exit Menu

The Exit menu displays the various options to quit from the BIOS setup. Highlight any of the exit options then press **Enter**.



```
                              Bios Setup Utility
  Main  Advanced  Chipset  Security  Server Mgmt  Event Logs  Boot  Save & Exit

  Save Changes and Exit                                 Exit system setup after
  Discard Changes and Exit                              saving the changes.

  Save Options
  Save Changes

  Restore Defaults

  Boot Override
  IBA GE Slot 0100 v1501
  UEFI: Built-in EFI Shell
  TDKMediaTrans-It Drive PMAP
  UEFI: TDKMediaTrans-It Drive PMAP
                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F3: Previous Values
                                                        F9: Optimized Defaults
                                                        F10: Save & Exit
                                                        ESC: Exit

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```

Save Changes and Exit

Saves changes made and close the BIOS setup.

Options available: Yes/No.

Discard Changes and Exit

Discards changes made and close the BIOS setup.

Options available: Yes/No.

Save Options

Save Changes

Saves changes made in the BIOS setup.

Options available: Yes/No.

Restore Defaults

Loads the default settings for all BIOS setup parameters. Setup Defaults are quite demanding in terms of resources consumption. If you are using low-speed memory chips or other kinds of low-performance components and you choose to load these settings, the system might not function properly.

Options available: Yes/No.

Boot Override

Press Enter to configure the device as the boot-up drive.

UEFI: Built-in in EFI Shell

Press <Enter> on this item to Launch EFI Shell from filesystem device.

Chapter 3 Appendix

3-1 Regulatory Statements

Regulatory Notices

This document must not be copied without our written permission, and the contents there of must not be imparted to a third party nor be used for any unauthorized purpose. Contravention will be prosecuted. We believe that the information contained herein was accurate in all respects at the time of printing. GIGABYTE cannot, however, assume any responsibility for errors or omissions in this text. Also note that the information in this document is subject to change without notice and should not be construed as a commitment by GIGABYTE.

Our Commitment to Preserving the Environment

In addition to high-efficiency performance, all GIGABYTE motherboards fulfill European Union regulations for RoHS (Restriction of Certain Hazardous Substances in Electrical and Electronic Equipment) and WEEE (Waste Electrical and Electronic Equipment) environmental directives, as well as most major worldwide safety requirements. To prevent releases of harmful substances into the environment and to maximize the use of our natural resources, GIGABYTE provides the following information on how you can responsibly recycle or reuse most of the materials in your "end of life" product.

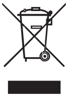
Restriction of Hazardous Substances (RoHS) Directive Statement

GIGABYTE products have not intended to add and safe from hazardous substances (Cd, Pb, Hg, Cr+6, PBDE and PBB). The parts and components have been carefully selected to meet RoHS requirement. Moreover, we at GIGABYTE are continuing our efforts to develop products that do not use internationally banned toxic chemicals.

Waste Electrical & Electronic Equipment (WEEE) Directive Statement

GIGABYTE will fulfill the national laws as interpreted from the 2002/96/EC WEEE (Waste Electrical and Electronic Equipment) directive. The WEEE Directive specifies the treatment, collection, recycling and disposal of electric and electronic devices and their components. Under the Directive, used equipment must be marked, collected separately, and disposed of properly.

WEEE Symbol Statement



The symbol shown below is on the product or on its packaging, which indicates that this product must not be disposed of with other waste. Instead, the device should be taken to the waste collection centers for activation of the treatment, collection, recycling and disposal procedure. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local government office, your household waste disposal service or where you purchased the product for details of environmentally safe recycling.

- When your electrical or electronic equipment is no longer useful to you, "take it back" to your local or regional waste collection administration for recycling.
- If you need further assistance in recycling, reusing in your "end of life" product, you may contact us at the Customer Care number listed in your product's user's manual and we will be glad to help you with your effort.

Finally, we suggest that you practice other environmentally friendly actions by understanding and using the energy-saving features of this product (where applicable), recycling the inner and outer packaging (including shipping containers) this product was delivered in, and by disposing of or recycling used batteries properly. With your help, we can reduce the amount of natural resources needed to produce electrical and electronic equipment, minimize the use of landfills for the disposal of "end of life" products, and generally improve our quality of life by ensuring that potentially hazardous substances are not released into the environment and are disposed of properly.